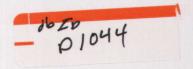
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Belews Creek Steam Station

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Belews Creek Pine Hall Ash Landfill Permit (#85-03) – Groundwater Map

Prepared for: Duke Power Company Charlotte, NC

Prepared by: Schaeffer Geological Services, PLLC Charlotte, NC And

Devine Tarbell & Associates, Inc. Charlotte, NC



**July 2005** 



Devine Tarbell & Associates, Inc. Consulting Engineers, Scientists, & Regulatory Specialists

SCHAEFFER GEOLOGICAL SERVICES, PLLC
Engineering Geology and Seismology
6521 Highwood Place
Charlotte, NC 28210-5329 USA

#### **Belews Creek Steam Station**

# BELEWS CREEK PINE HALL ASH LANDFILL PERMIT (#85-03) - GROUNDWATER MAP

Prepared for: DUKE POWER COMPANY Charlotte, North Carolina

Prepared by:

SCHAEFFER GEOLOGICAL SERVICES, PLLC 6521 Highwood Place Charlotte, NC 28210-5329

and

DEVINE TARBELL & ASSOCIATES, INC. 400 South Tryon Street, Suite 2401 Charlotte, North Carolina 28285

> SGS Project No.: 01.1002.05 DTA Project No.: 024.0097.0000

> > July 22, 2005

SCHAEFFER GEOLOGICAL SERVICES, PLLC
Engineering Geology and Seismology
6521 Highwood Place
Charlotte, NC 28210-5329 USA



#### SCHAEFFER GEOLOGICAL SERVICES, PLLC



Engineering Geology and Seismology 6521 Highwood Place Charlotte, NC 28210-5329 USA



July 22, 2005

William M. Miller, P.E. Duke Energy Corporation Environmental Engineering P. O. Box 1006 Charlotte, NC 28201-1006

Subject: Belews Creek Ash Landfill (Permit #85-03) - New Groundwater Map

Dear Mr. Miller:

As requested, I have prepared a new groundwater map (Figure 1 – Enclosed) using data from the monitoring and observation wells as well as data from the piezometers installed last fall to investigate the water level in Observation Well OB-1 ("Belews Creek Pine Hall Ash Landfill Permit (#85-03) – Investigation of the Water Level in Observation Well OB-1", dated February 10, 2005). The groundwater contours are based on measurements made on May 25, 2005. The perched water table discussed in the February 2005 report is shown in Figure 1 on both the plan and appropriate cross-section. Also included in this report is Figure 2, an aerial photograph of the ash landfill with the locations of the piezometers, monitoring wells, and observation wells.

The logs of the wells/piezometers used to develop the groundwater map are included in Attachment A.

If you have any questions or need additional information please let me know.

Sincerely,

Malcolm F. Schaeffer, PG,

Schaeffer Geological Services, PLLC

6521 Highwood Place

Charlotte, NC 28210-5329

548 orth Camilina Licensed Geologist #546

## ATTACHMENT A

## WELL COMPLETION RECORD

MPLETE ALL INFORMATION REQUESTED BELOW FOR PARTMENT OF HUMAN RESOURCES, SOLID J. BOX 2091, RALEIGH, N.C. 27602	OR EACH WELL INSTALLED, AND RETURN FORM TO THE AND HAZARDOUS WASTE MANAGEMENT BRAN
NAME OF SITE:	PERMIT NO.:
BELEWS CREEK STEAM STATION	85-03
ADDRESS:	OWN TO A
P.O. BOX 557, WALNUT CONE, NC	- 27062 DUKE POWER CO.
DRILLING CONTRACTOR:	REGISTRATION NO.:
DUKE POWER CO.	921
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: HS 3342 (6/85)

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#### **DUKE POWER COMPANY** CONSTRUCTION DEPARTMENT PROJECT BELEUS LEFEX

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STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

**POWER AUGER** 

-BIAMOND-CORE---

CASING SIZE\_

LENGTH.

HAND CHOP: W/MUD: W/WATER

ROTARY DRILL: W/MUD: W/WATER-

STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

O TO44.5

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-TO

#### AS-BUILT INSTALLATION STETCH

Instrument No. MW-1 Station - M/A Offset M/A

By D. DICKSON Date 8-11-89

NOTE: NOT TO SCALE 2.0 1/8" & VENT HOLE ILLITHE KLATER IN RIC CAP LEVEL ROG @ 31.4 FROM LOCKABLE STEEL CAP TOP/ PIPE on 8.9-89 4" \$ STEEL D PROTECTIVE CASING TAPE ELEV. TOP OF GROUND CONCRETE -RIC STANDAGE CASING .. Z" NOM. DIA. (THEADET. HOLE ABOVE SEAL FILLET.
WITH CEMENT-BENTONITE
GROUT - 52 FENTONITE  $\mathcal{C}$ BELLIONITE SEAL 0 Vi SLOTTED TRILOC RIC Z # NOM. DIA W/ O.DI SLOTS @ 180.C. 0  $\mathcal{O}$ RYC CAP CLEAN SATURATED SAND-N BOTTOM OF BORING @ 44.5' FROM

GROUND SURFACE

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#### WELL COMPLETION RECORD

APLETE ALL INFORMATION REQUESTED BELOW FOR PARTMENT OF HUMAN RESOURCES, SOLID A P. O. BOX 2091, RALEIGH, N.C. 27602	EACH WELL IN NO HAZARD	NSTALLED, AND RETURN FORM TO THE OUS WASTE MANAGEMENT BRAI
NAME OF SITE:  BÉLEUS CREEK STEAM STATION		PERMIT NO.: 95 - 03
ADDRESS: P.O. BOX 557, WALDUT COVE, NC	ファイフ	OWNER (print):
DRILLING CONTRACTOR:  - DUKE POWER CO.	2 705 2	PUKE POWER CO.  REGISTRATION NO.:  921
Casing Type:  THREADED TRICOC RIC dia. Z in.  Casing Depth: from Q to 37.9 ft dia. Z in.  Screen Type: SLOT -010. TRICOC RIC dia. Z in.  Screen Depth: from 37.9 to 47.9 ft dia. Z in.  Static Water Level: 43. Z feet from top of casing	Sand/Gravel P	from 0 to 32.9 ft dia. (x)
rield (gpm): Method of Testing:		Casing is 2.1 feet above land s
DRILLING LOG		LOCATION SKETCH
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FIELD REPORT FOR		
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REMARKS: SCREEN PLACED IN		
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DATE: 8-11-8'9 SIGNATURE:	D.	dichon :

: HS 3347 (6/85)

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## DUKE POWER COMPANY CONSTRUCTION DEPARTMENT PROJECT BELL'S CLEEK

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#### **DUKE POWER COMPANY** CONSTRUCTION DEPARTMENT

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GROUND SURFACE

## WELL COMPLETION RECORD

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+ STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

Form 25630 (R3-87)

#### WELL COMPLETION RECORD

MPLETE ALL INFORMATION REQUESTED BELOW FOR PARTMENT OF HUMAN RESOURCES, SOLID A P. O. BOX 2091, RALEIGH, N.C. 27602	EACHWELLINSTALLED, AND RETURN FORM TO THE ND HAZARDOUS WASTE MANAGEMENT BRAN
NAME OF SITE: BELEWS CLEEK STEAM STATION	PERMIT NO.: \$5-03
ADDRESS: P.O. BOX 557, WALNUT COVE, NO	OWNER (princ)
DRILLING CONTRACTOR:  DUKE POLIER CO.	REGISTRATION NO.: 921
Casing Type: THREADED TRUCK Ric dia. Z in. Casing Depth: from O to ZS. Zft dia. Z in. Screen Type: SWT. QIO TRUCK Ric dia. Z in. Screen Depth: from ZS. Z to 3S. Zft dia. Z in. Static Water Level: 17.5 feet from top of casing Yield (gpm): MA Method of Testing: MA	Grout Depth: from 0 to 23.2 ft dia. 6.7  Bentonite Seal: from 23.2 to 24.2 ft dia. 6.7  Sand/Gravel PK: from 26.2 to 39.5 ft dia. 6.2  Total Well Depth: from 0 to 39.5 ft dia. 6.2  Date Measured 8/9  Casing is 1.8 feet above land s
rield (gpm):	Casing is feet above land s
DRILLING LOG	LOCATION SKETCH
TO FORMATION DESCRIPTION  MIX - 4	(show distance to numbered roads, or other map reference p
SEE ATTACHED SOIL TEST	
BORING FIELD REPORT FOR	
CANDFICE.	
REMARKS: SIREW WAS PLACED CONDUCTIVE AQUIFER P	ER BALGH ROBERTS.
DATE: 8-11-867 SIGNATURE: MOSS	1 Lichar

\* AUGUR REFUSAL@ 395

BORNG TERMINATED - SE ATTACHED SET

1 4512100 0 1 5408 LOLD CT-DIL DUKE POWER COMPANY - BELEWS CLEEK STEAM STATION AS-BUILT INSTALLATION STEETCH Station - M/A STW-4" Instrument No. N/A Offset 8-11-85 D. DICKSON Date NOTE: NOT TO SCALE 2.0 1/8" & VENT HOLE IN RIC CAP ILITAL WATER LEVEL ROG @ 17.5' FROM - LOCKABLE STEEL CAP TOP/ PIPE 4"\$ STEEL on 8-4-87 PROTECTIVE CASING b T/APE ELEV. TOP OF GROUND CONCRETE RIC STANDARE CASING Z" NOM. DIA. (THREADED) HOLE ABOVE SEAL FILLED WITH CEMENT-BENTONITE GROUT - 52 BENTONITE BELTONITE SEAL SLOTTED TRILOC RIC. Z" & NOM. DIA W/ 0.01 SLOTE @ 180.C. PUC CAP  $\omega$ CLEAN SHURATED SAND. NE

BOTTOM OF BORNG

GROUND SURFACE

FROM

@ 37.5

### WELL COMPLETION RECORD

MPLETE ALL INFORMATION REQUESTED BELOW FOR	EACH WELL II	NSTALLED AND RETURNING
Triniting of Homein Resources, Solid A	ND HAZARD	OUS WASTE MANAGEMENT PRAN
c. O. BOX 2091, RALEIGH, N.C. 27602		MANAGEMENT BRAN
NAME OF SITE:		
		PERMIT NO.:
BELEWS CLEEK STEAM STATION		85-03
ADDRESS:		OWNER (print):
- P.O. BOX 557, WALNUT COVE, NO	27052	DUKE POWER CO
DRILLING CONTRACTOR:		REGISTRATION NO.:
DUKE POWER CO.		921
and a second		-121
Casing Type: THREAPED TRICC RC dia. Z in. Casing Depth: from 0 to 48.3 ft dia Z in.		
Secret Total Sign Tricks Rich	Bentonite Seal	from <u>43.3</u> to <u>46.3</u> fr edia (1)
Screen Depth: from 48.3 to 58.3 ft dia in.	Sand/Gravel P	K: from 46.3 to 60.5 ft. dia. 6.3 to 60.5 ft. dia. 6.3 to 60.5 ft. dia.
Static Water Level: 28'. 2 feet from top of casing	TOTAL WELL DE	•
Static water Level: teet from top of casing		Date Measured 8 / 5
rield (gpm): Method of Testing: Method of Testing:		Casing is 1.7 feet above land st
		rect above BIM 3(
DRILLING LOG		
DEPTH	(1 1:	LOCATION SKETCH
OM TO FORMATION DESCRIPTION	(show distance	to numbered roads, or other map reference pc
- Statistical Blockin flow	1	
MW-5		
SEE ATTACHED SOIL TEST		
BORING FIELD REPORT FOR		
	•	
MILI-S @ FEXASH		
Chitofice.		
		•
REMARKS: SCREEN 145 PLACE		TIL- 11 -
HYDRAULICALLY CONTOUR	TIVE HE	QUIFER
PER RALAH FOBERTS	•	
	<u></u>	
DATE: 3-11-89 SIGNATURE: SOUTH		Mailar
		KYKIKIK Y
: HS 3342 (6/85)		

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PAGE OF. 2

### **DUKE POWER COMPANY** CONSTRUCTION DEPARTMENT PROJECT BELLUS CREEK

					SOIL	TE:	ST BORING F	FIELD REPORT	,
١.,			N/A					STARTING TIME	A
100	)R MO	- 0	111	111	2001		11/-	GROUND SURFACE ELEV	
1C	B NAMI	77	YASH	CAN	DIL	_ MI	k/'s	HRS. DRILLING HRS. MOVING	3 N/A
D,	ATE	5,8	-87		WEATH	ER_K/	AZM INSPECTO	OR D. D. CASO BORING NO.	MW-5
-	1	SAMP	LING 6" 2ND 6	" ( 3RD 6	SCALE	au	so	IL CLASSIFICATION AND REMARKS	
					0 -		AD. Z	TPPILL RIG # 7555	
L	-				<b>]</b>		USING	PRILL RIG * 2555 Ca" & FWGER	
<del>                                     </del>	27			<del> </del>					
上	5.2	4	8	17	- - 5 -		3AJ04	LED FINE TO MEDY	mi
	ļ			ļ	T				
<u> </u>		-			<b>-</b>				
-	07	-			┥		16-76- 11-		
-	8.7	26	10	10			SANTOU	LED FILE TO NED!	UN
				1	10 –		70009	3. 0	
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ユ	13.	2 4	13	6			BLOWNISH	YELLOW FINE TO	MEDIUM
<u> </u>	17.0.8	7	ا		-/5 <b>-</b>			y >/c,	
_			_	ļ	┨ │				
4	187		3 3	13	·		YELLOWISA	SILT.	SEDIUM
	20.	4 -	, 3	-	20 -		SAUDY	3(27.	· . · · · · · · · · · · · · · · · · · ·
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5	23.	7 3	ار ا	1	<b> </b>		LT. OCIVE	Blown FINE TO A	HEDIUNI
	62.	7	<u> </u> 5_	<u>\</u>	25 -		34,004	SILT	
		1	<del> </del>	1 -					
Q	28	7					CT. GRAY	FUE TO MEDIUM SAN	DY 515T
	30.	2 7	10	10	<del>2</del> 0 -				
<u> </u>	1			+					
			<b>†</b>	<b>†</b>	1 —		•		<del></del>
7	33.						LT. GRAY	FINE TO MEDIUM SANT	24 5//T
	35.3	_ 5	18	14	35 -				
	<del> </del>			-	-				
		_	+	<del> </del>			-3/-		
8	58.	7					OLIVE YELL	OW SILTY FINE TO	
		217	28	29	40 -		MEDIVA		
 	L	<u> </u>							
	RING T		ATED		<u> </u>		0.5	METHOD OF ADVANCING BORING	DEPTH
	RING R TER TO						A.M. 8-8-87	POWER AUGER	D TO 60.5
			EPTH 4	?G. S	70°	2:00	P.M. 8.9.89	HAND CHOP: W/MUD: W/WATER	— то —
WA	TER LO	SSES		MA				-ROTARY DRILL: W/MUD: W/WATER-	1 .
CA	SING SI	ZE	Y/A_	L	<b>ENGTH</b>		0	-DIAMOND CORE	<del>-10</del>

STANDARD PENETRATION RESISTANCE IS SUM OF BLOWS FOR 2ND 6" AND 3RD 6" TO DRIVE 1-3/8" I.D., 2" O.D. SPLIT BARREL SAMPLER WITH 140 POUND HAMMER FALLING 30 INCHES

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Capui (iii)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)			90	Diez	(t) 835.2
5	<u> ඊ කි</u>	ΰž	ÖÖ	<u>6</u> B	<u> </u>	SOIL DESCRIPTION				
						Advanced with 7-1/4" OD Augers.				
			•					.		
			·							
			3.0'							
				2		OA NAA VAILA TALANA ARABINANA ARABIN				
		S1	4.5"	6 8		S1, N=14, Yellowish red, slightly micaeous, fine SILTY-SANDY CLAY.		`		
5_										830.2
				•						
			8.0'						CL CL	825.2
				2						
	-	<b>S</b> 2	9.5'	5 6		S2, N=11, Yellowish red, slightly micaeous, fine SILTY-SANDY CLAY.			CL	
10			9.0							825.2
-					]			.		
	<u> </u>				ļ					
				-	ł	Large bag sample taken from auger cuttings, 8.0' to 18.0".				
	-		•		1					
			13.0		]					
				2						
	<b> </b>	83		<u>5</u> 7		S3, N=12, Yellowish red, slightly micaeous, fine SILTY-SANDY CLAY.			CL	
15	1		14.5		1					820.2
		1			]					
		_			1					
				-	-					
		1		-	1					120
			18.0		1					
				2						
		\$4		3		S4, N-7, Yellowish brown, slightly micaeous, fine SANDY SILT.			ML	
20			19.5	4						815.2
		mple 7	vpes	S:split s	spoon	JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:	unconfined compressive	strengtl	n test	
				eading		Project Information	Equipment			ner/Dro
				Depth		Client: Duke Power Company	Augers:	r	√a_	
	Date	Time	Cas-	Hole	1		Split spoon 1:	/	Autom	atic
05	5/03/00	4:00p	0.0	48.4	28.8	Project No.: 00003.08.0080.00.00000	Split spoon 2:	/	Autom	atic
0:	5/10/00	8:00a	36.5	48.4	27.3	Location: Belews Creek, North Carolina	Core Barrel ID:	√a		
						Drilling Contractor: DE&S	Core Barrel Type:	ı/a		
						Drillers: Jim Barker/Ricky Dickard Drill Rig: CMS	Boring Logged By: C	AMedli	n/ MF	S
	Date Bo	ring Co	mpleted	:	05/03/0					
		SER REF		7		Duke Engineering & Services.	BORING	G M	<b>N</b> -6	
		al Donéh	of Hole	: 48.4		A Duke Energy Company	Page 1 o	f 3		

0_	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION	nscs	Piez.	Elev. (ft)
0_	n/a						<del>                                     </del>	П	815.2
					•				
						Large Bag Sample from auger cuttings, 18.0' to 28.0'.			
				<u> </u>				Н	
			23.0'						
		85		2 3		S5, N=7, Yellowish brown, slightly micaeous, fine SANDY SILT.	ML		
			24.5	4					
25					]				810.2
					1			旧	
					-	Screened Interval from 24.0' to 34.0'.		旧	
				ļ	1	Result of Slug Test: k=2.1E-04 cm/sec.		旧	
					1				
	·		28.0		1				
				2					
		S6		2		S6, N=7, Yellowish brown, sligthly micaeous, fine SANDY SILT.	ML	·II	
		22300	29.5	5					805
0_		-	1	-	-				-000
					1	Large Bag Sample from auger cuttings, 28.0' to 38.0'.			
		1			1	Large bag cample nom adger catalige, 2010 to core			
			33.0		_				
	İ			8		OT N. CT. Valley dals because disability releases for CANDV SH T	м		
	-	\$7	045	14 23	1	S7, N=37, Yellowish brown, slightly micaeous, fine SANDY SILT.	"	- 	
35		200	34.5	1 49					800
		1			1				
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	·	4	1	-	4				
			00.0	-	1				
	<u> </u>		38.0	3	8				
		<b>S8</b>		6		S8, N=15, Yellowish brown, slightly micaeous, fine SANDY SILT.	м	L	
			39.5						
40								-	79
		1		<u> </u>	_				
		4		_	-				
	1		1	-	-				
	_	-			-				
			43.0	,	_				
				Б					
		S9		13	3.43	S9, N=42, Yellowish brown, slight;y miceous, fine SANDY SILT.	N	AL D	
			44.5	7 29					79
45				Д				<u>lii</u>	<u> </u>
	s	ample	Types	S:split		UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive str	ength	ıest	
	Ground	Surface	Elev. (	t)	935.2		RAIA	J_ C	
	Date B	oring Co	omplete	d:	5/3/200		IVI V	<b>y-0</b>	
_		oring I d	ogged B	v:	CAM/MI	A Duke Energy Company Page 2 of 3			

(tj) under (ff)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)		SOIL DESCRIPTION	nscs	Piez.	790.2
45_	n/a							-		
										-
			48.0'							
		89	48.1	50/2"		3	=50/2", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.	SM		
	-				1		Refusal @ 48.4'		363633	
50				<u> </u>			, Tommaco & 40.4			785.2
_										
					1		oring Well Installed. See Installation Sheet for Details.			
					1	Scree	ned Interval from 24.0' to 34.0'.			1 1
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70	,									765.2
_	S	ample	Types	S:split	spoon	UD:3	dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive stre	ngth t	est	<del></del>
	Ground				935.2		Duke Engineering  BORING I	MINA	<u> _</u>	
-	Date B	oring Co	ompleted	1:	5/3/200	0	AD LE VI Coming	AI A A	-0	
1		orina La	aged B	v: C4	Medlin/	MFS	A Duke Energy Company Page 3 of 3			

(49) (49)	Depui (it)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)		SOIL DESCRIPTION			nscs	Piez.	Elev. (ft)
=	0	ပေရး	S Z	<b>ω</b> Δ	<b>8</b> 6	n/a		SUIL DESCRIP HON					786.8
							1	nced with 7-1/4" OD Augers.		- 1			
						-	FLY.	ASH from 0 to 4.5'.					
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	-					1							
Ì						1							
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l	ļ			4.5		1				.			
	5_					-		D. who do 01 750-4 01					781.8
Ì			<b>1355</b>			1	וישטן	Pushed 2.0', REC=1.9'.					
						1							
					2								
			81		3		S1, N	l=6, Brown, slightly micaeous, very fine SANDY SILT.			ML		
			عدانه عنمجون	8.0	3	4							
1						-							
				9.5	<u> </u>	-							
	10					1							776.8
			8002				UD2	Pushed 2.0', REC=2.0'. Lab tests include G-Grain Size, Soil Classification	ı (USCS),		СН		
							A-At	terburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=51	, PI=38; UW=64.7pcf;		(G)		
1				<b>(888)</b>		-	SG=	2.86; Por=0.64; <u>k=2.86E-06 cm/sec</u> .					
ļ					3			C. CANDYOU T					
1		·	<b>S2</b>	ا	4		S2, 1	N=8, Yellowish brown, slightly micaeous, very fine SANDY SILT.			ML		
		-		13.0	9						-		
				İ			Į.						
				14.5'									
1	15_				2					٠			771.8
١			53		4		S3, 1	N=13, Yellowish brown, slightly micaeous, very fine SANDY SILT.			ML		
				16.0	9								
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1						]							
						_	1						
						4							
				19.5		-		a han against Aslain from a company of the AF OLAS OF OL					766.8
+	20			<u> </u>	2			e bag sample taken from auger cuttings, 15.0' to 25.0'.	antinad compressive	ctrone	<b>1</b>	10 L	1 700.0
ŀ							OD:3	dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unc		iD.			r/Drop
-			ater L		-			Project Information	Equipment	<u> </u>		me	norop
ŀ			·	Cas-		of (ft		Client: Duke Power Company	Augers:		n/a		
-		ate	Time	ing	Hole	W	ater	Project: Belews Creek Ash Landfill - Permit	Split spoon 1:		Auto		
ļ	05/	03/00	2:00p	0.0	51.5	34.5		Project No.: 00003.08.0080.00.00000	Split spoon 2:		Auto	mat	<u>c                                     </u>
ļ	05/	10/00	8:00a	44.0	51.5	34.3		Location: Belews Creek, North Carolina	Core Barrel ID:	n/a			
			ļ		_				Core Barrel Type:				
								Drillers: Jim Barker/Ricky Dickard   Drill Rig: CMS   B	oring Logged By:	CAMed	iin/M	FS	
		Date Bo	ring Co	mpleted	1:	05/02/0	0	Duke Engineering					
Ī			ER REF					& Services.	BORING	3 M	W2	-1	
t			al Depth					A Duke Energy Company	Page 1	of 3			
. L		100	" sehui	. J. 11016	01.6	·			. 490 1	<u> </u>			

Solution (Complete)  Solution	Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION		nscs	Piez.	Elev. (ft)
S6, N=50/6*, Yellowish brown, slightly micaeous, very fine SANDY SILT.  Large bag samiple taken from auger cuttings, 25.0* to 35.0*.  Screened interval from 31.5* to 41.5*. Result of Slug Test: k=9.7E-95.cm/sacc  34.5  35. 11. 57, N=77/8*, Yellowish brown, slightly micaeous, very fine SAND. (G,A)  Large bag sample taken from auger cuttings, 35.0* to 45.0*.  S8, N=50/3*, Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S	20_	n/a	o z	<u> </u>	8 9	R =	SOIL DESCRIPTION				766.8
S6, N=50/6*, Yellowish brown, slightly micaeous, very fine SANDY SILT.  Large bag samiple taken from auger cuttings, 25.0* to 35.0*.  Screened interval from 31.5* to 41.5*. Result of Slug Test: k=9.7E-95.cm/sacc  34.5  35. 11. 57, N=77/8*, Yellowish brown, slightly micaeous, very fine SAND. (G,A)  Large bag sample taken from auger cuttings, 35.0* to 45.0*.  S8, N=50/3*, Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S8, N=50/3*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S8 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S9, N=50/5*, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  S9 39.5  S							UD3, Pushed 2.0', REC=2.0'				
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36, N=50/6*, Yellowish brown, slightly micaeous, very fine SANDY SiLT.  Large bag samiple taken from auger cuttings, 25.0* to 35.0*.  Screened Interval from 31.5* to 41.5*. Result of Slug Test: k=9.7E-95 cm/sacc  35, N=77/9*, Yellowish brown, slightly micaeous, very fine SAND. (G,A)  L1=30, Pi=2  39.5*  40  88. 33.8* 888 33.8* 888 888 888 8888 8888 8888 8888 8888											
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39.5 S8 39.9 59/6 S8, N=50/3", Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Alterberg Limit U:unconfined compressive strength test  Ground Surface Eiev. (ft) 786.8  Date Boring Completed: 5/2/2000  BORING MW2-1  Abbit Every Company			1			ļ					
39.5 S8 39.9 59/6 S8, N=50/3", Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Alterberg Limit U:unconfined compressive strength test  Ground Surface Eiev. (ft) 786.8  Date Boring Completed: 5/2/2000  BORING MW2-1  Abbit Every Company						]			ļ		
39.5 S8 39.9 59/6 S8, N=50/3", Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Alterberg Limit U:unconfined compressive strength test  Ground Surface Eiev. (ft) 786.8  Date Boring Completed: 5/2/2000  BORING MW2-1  Abbit Every Company	35			34.5	14						751.8
39.5 S8 39.9 59/6 S8, N=50/3", Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Alterberg Limit U:unconfined compressive strength test  Ground Surface Eiev. (ft) 786.8  Date Boring Completed: 5/2/2000  BORING MW2-1  Abbit Every Company	"-	1	<b>S7</b>				S7, N=77/9", Yellowish brown, slightly micaeous, very fine SAND. (G,A)		s	¥∐	
39.5 S8 39.9 59/6 S8, N=50/3", Yellowish brown, slightly micaeous, very fine SILTY SAND, weathered rock.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Large bag sample taken from auger cuttings, 35.0' to 45.0'.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Alterberg Limit U:unconfined compressive strength test  Ground Surface Eiev. (ft) 786.8  Date Boring Completed: 5/2/2000  BORING MW2-1  Abbit Every Company		ļ		35.7	50/8*		LL=30, PI=2		(0	»∤≣	
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1						1					
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1			]								
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1			1		-	-					
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1						1					
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1	40			7 1 19 19 19 19	عديد ا		CR N=50/2" Vellowich brown elichtly microcure year, fine Cli TV CAMP weethe	red rock			7/6 0
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1	40_		200	99.8	90/8	1	30, 17-30/3 , Tellowish brown, Signly Illicacous, very file SiLTT SAND, Wedne	.03 10011	"	7	
44.5 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering  A Duke Engineering  BORING MW2-1		<u> </u>	-			-	Large bag sample taken from auger cuttings, 35.0' to 45.0'.				
45 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock. SM 741.8  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000 BORING MW2-1  A Duke Engineering						+					1
45 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock. SM 741.8  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000 BORING MW2-1  A Duke Engineering			1			]					
45 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock. SM 741.8  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000 BORING MW2-1  A Duke Engineering			-			+					
45 S9 44.9 50/5" S9, N=50/5", Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock. SM 741.8  Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000 BORING MW2-1  A Duke Engineering											
Sample Types S:split spoon UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive strength test  Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering & Services.  A Duke Encry Company			107	V 18		-	CO ALECCIEN Valleying beauty and the state of the state o	not.			744 ^
Ground Surface Elev. (ft) 786.8  Date Boring Completed: 5/2/2000  Duke Engineering & Services.  A Duke Engineering	45		2 0 35000			••					<u> 141.8</u>
Date Boring Completed: 5/2/2000 BORING MW2-1					1			minos compreseive e	v. 1941		- 1
A Duke Energy Company							Duke Engineering & Services.	BORING	MW	2-1	
					1	AM/MF	A Duke Energy Company	Page 2 of	3		

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)		nscs	Piez.	(t) Elev. (t) 741.8
<u>မီ</u> 45	C/a	S S	Sa	e ğ	Re (in	SOIL DESCRIPTION	<u>5</u>	<u> </u>	741.8
_									
				•					ŀ
			49.5'						1
50_		S10	49.6	50/2*		S10, N=50/2", No recovery in split spoon.		 -	736.8
				<u></u>					
						Auger Refusal @ 51.5'			İ
						Boring Terminated @ 51.5'			
									Ì
				ļ		Monitoring Well Installed. See Installation Sheet for Details.			
				<u> </u>		Monitoring Well Installed. See Installation Sheet for Details.  Screened Interval from 31.5' to 41.5'.			
55_				<u> </u>				-	731.8
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65				-	1				721.8
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	-	-		-	1				
70									716.8
	Sa	mple	Types	S:split	spoon	JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive stren	gth tes	t_	
	Ground	Surface	Elev. (ft		786.8	Duke Engineering			
<u></u>	Date Bo	ring Co	mpleted	:	5/2/2000	Duke Engineering  & Services.  BORING M	W2-	1	
1	Bo	rina Lo	aaed By		AM/MF	A Duke Energy Company Page 3 of 3			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	COULDECARIDATION			nscs	Piez.	( <b>L</b> ) 784.7
<u> </u>	Ü ma	ΰŽ	ÖΔ	<u>a</u> <u>a</u>	ž ē	SOIL DESCRIPTION					784.7
_											
			-								
											.
								.			
	-		4.1'								
5		<b>S1</b>		2 3		S1, N=4/18", Light gray, very fine, wet FLY ASH.					779.7
] <sup>3</sup> -		7,		1/12*		31, 14-4/10 , Light gray, very line, wet i Li Adri.					
			6.1	•				.			
	<u> </u>	4		·							.
											. 1
		1									
1.			9.1			Fly ash from 0' to ~9.4'.		.			
		* 5.		3	,	· · · · · · · · · · · · · · · · · · ·					
10		<b>S2</b>		5		S2, N=11, Yellowish brown, slightly micaeous, very fine <b>SANDY SILT</b> .			ML		774.7
			10.6	6							·
		-									
		1		<b> </b>							
	L	_						:			
				<u> </u>							
	-		14.1	_		Large bag sample collected from auger cuttings, 10.0' to 20.0'.					
15			V		İ	UD1, Pushed 2.0', REC=2.0'.					769.7
"	+		V			051, 1 usiled 2.0, NEO-2.0.					
			Name of the second		]						
				9							
		<b>5</b> 3		- 5		S3, N=11, Yellowish brown, slightly micaeous, very fine SANDY SILT.					
		E 8. 46	17.6	6							
1	-	1		-	1						
			19.1		]						
	-				<u> </u>						
20		(Mana)			<u> </u>	UD2, Pushed 2.0', REC=2.0'.				<i>va</i> - <i>v</i>	764.7
-	S	ample 1	ypes	S:split s	poon	JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:u	1				
<u>.</u>		Nater L	evel R	eading	5	Project Information	Equipment	ID	Han	mei	/Drop
-		1	Cas-	Depth o	of (ft)	Client: Duke Power Company	Augers:		n/a		
	Date	Time		Hole	Wa	ter Project: Belews Creek Ash Landfill - Permit	Split spoon 1:	· · ·	Auto	mati	С
	5/03/00	9:00a	0.0	64.1		Project No.: 00003.08.0080.00.00000	Split spoon 2:		Auto	mati	С
	5/10/00	9:00a	39.5	64.1	30.4	Location: Belews Creek, North Carolina	Core Barrel ID:	n/a			
_						Drilling Contractor: DE&S	Core Barrel Type:				<u> </u>
L						Drillers: Jim Barker/Ricky Dickard Drill Rig:	Boring Logged By:	CAMed	lin/M	FS	
	Date B	oring Co	mpleted	:	05/02/00	Duke Fnaineerina					
		GER REF				Duke Engineering & Services.	BORING	3 M	W2	-2	
	To	tal Depth	of Hole	: 65.6'		A Duke Energy Company	Page 1	of 3			

(1) India 20_	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION	nscs	Piez.	764. (#)
20	iva								-
	·			2			1		
		S4		6		S4, N=16, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.	SM		
			22.6'	10					
			24.1'			Large bag sample collected from auger cuttings, 20.0' to 30.0'.			
25		4903				UD3, Pushed 1.4', REC=1.4'. Lab Tests include G-Grain Size, Soil Classification (USCS).	ML		759.
			1355			A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=NP, PI=NP;	(G)	Н	
				24		UW=89.8pcf; SG=2.65; Por=0.46; <u>k=1.81E-04 cm/sec</u> .			
		<b>S</b> 5		23 20		S5, N=43, Yellowish brown, slightly micaeous, fine SILTY SAND, weathered rock.	'		
			27.0	40_		Screened Interval from 27.0' to 37.0'.		誾	
					İ	Result of Slug Test: k=3.1E-04 cm/sec.		闦	
							1	閶	
			29.1'					旧	
							1	旧	
30		NIBA				UD4, Pushed 2.0', REC=1.1'.		圃	754
								旧	
			(1900)	3				目	
		<b>S</b> 6		4		S6, N=10, Yellowish brown, slightly micaeous, very fine SANDY SILT.	ML	圃	
			32.6	6				閫	
					]				
					]		-	旧	
			34.1		-		1	閫	
2.2	•		V		1		1 220	ᅦ	
35_	-	<b>(111)6</b>	V	<u></u>	-	UD5, Pushed 2.0', REC=2.0'. Lab Test include G-Grain Size, soil Classification (USCS).  A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=48, PI=19;	ML (G)	I	749
			<b>1</b>		1	UW=86.1pcf; SG=2.73; Por=0.49; <b>k=6.63E-05 cm/sec</b> .	1999		
				8		500 500 po, 500 2.75, 150 50.15, <u>11 5152 15 511551</u>	ML		
		<b>S7</b>		12	1	S7, N=26, Brown, slightly micaeous, vrry fine SANDY SILT, weathered rock.		圓	4
			37.6	14			ĺ		
					]	Large bag sample taken from auger cuttings, 30.0' to 40.0'.			
				<u></u>	4				
			39.1		-		-		
40		/9999/		40.00		UD6, Pushed 0.4', REC=0.0'.			74
40_	-	58		29 14		S8, N=25, Brown, slightly micaeous, very fine SILTY SAND, weathered rock.	SM		1.7
			41.0			os, it 25, 215th, signly microsoc, tory microscop, to the microscop, to			
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	L				]				
					4				
	ļ	4			-		-		
			l		-				
	-		44.1	18 145 a 1981			SN		
45		<b>S9</b>		12		S9, N=29, Olive gray, slightly micaeous, very fine SANDY SILT. (G,A), LL=36, PI=5.	(G	2 10000	73
-73			Types		ences	UD:3" dia. thin wall tube  Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive stre	B B S	-	
					SPUUII				
	Ground				5/2/2000	Duke Engineering  & Services.  BORING N	AW?	2-2	
	Date Bo	ring Co	mpleted	:	JIEIEUUL	A Duke Energy Company		Æ	
	Bo	ring Lo	gged By	<u>/:</u>	AM/MF	S Page 2 of 3			

£) €	ng vs/ft	ple	ple th (ft)	/ SA	Recovery (in.)		တ္တ		E
Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (f	Blows 6"	Rec (in.)	SOIL DESCRIPTION	nscs	Piez.	739.7
45	n/a			17					
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			-						
					ļ.				
			40.41						
		<b>S10</b>	49.1' 49.6'	50/6"		S10, N=50/6", Olive brown, slightly micaeous, very fine SANDY SILT, weathered rock.	ML		
50_					]				
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		١.							
					1				
			54.1		]		ŀ		
				15					
55_		S11	55.6	25 35		S11, N=60, Yellowish brown, slightly micaeous, very fine SANDY SILT.	ML		
			22.9		1				
			1		]				
				-	1				
					1				
					]				
			59.1'	34		S12, N=50/5", Yelllowish brown, slightly micaeous, very fine SANDY SILT, weathered rock.	ML		
60		S12	60.0	7.75 3.3		S12, 14-50/5 , Telliowish brown, Signily fillicaeous, Very line SAND I SILT, Weathered 1996	"		
_					1		1		
	-	-		-	4		1		
	1			-	1				
		1			]				
		-			4		1		
			64.1		-				
				7		Augering Terminated @ 64.1'————————————————————————————————————			
65_	ļ	S13		40		S13, N=88, Brown, slightly micaeous, very fine SANDY SILT, weathered rock.	ML		
			65.6	48		Boring Terminated @ 65.6'		38888	3
		1			1				
		4			]	Monitoring Well Installed. See Installatiom Sheet for Details.	ŀ		
	1			-	-	Screened Interval from 27.0' to 37.0'.			
	-	1			1				
		1	}		]				
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70	<u> </u>	amnle '	Tynee	S:snlit	spoon	Lub:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive str	ength to	est	<u></u>
					SPOOII			-	
					5/2/2000	Duke Engineering  & Services.  BORING	/IW2	-2	
			gged By	1	CAM/MF	A Duke Energy Company			
!	Date Bo	oring Co	Elev. (ft	1:		A Duke Energy Company		-2	
	Bo	oring Lo	gged By	<u>/:                                     </u>	CAM/MF	, Page Sol 3			

Depth (ft)	Casing	Diows/III	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION		nscs	Piez.	784.7
0	-	+					Rotary Drill with Water.				184.7
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	. 🗀					]					
2						1			<u> </u>		764.7
<u> </u>		Sar	nple T	ypes	S:split s	spoon	JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:u	1			
-		W	ater Lo		eading		Project Information	Equipment ID	Ha	mme	r/Drop
-			· · ·	Cas-			Client: Duke Power Company	Casing / Augers:	+		
	Date	-	Time	ing	Hole			Split spoon 1:	Au	tomat	IC
H	05/16/00	)	4:00p	74.0	89.9	30.5	Project No.: 00003.08.0080.00.00000	Split spoon 2:	Ш		
F				-	-	-	Location: Belews Creek, North Carolina	Core Barrel ID: n/a		<del></del>	·
-	<del></del>		-	-	-	+	Drilling Contractor: DE&S	Core Barrel Type: NQ Boring Logged By: CAMe	dlin/	MES	
$\vdash$			L .	<u> </u>	+		Drillers: Jim Barker/Ricky Dickard Drill Rig: CMS	Doring Logged by. OAme			<del></del>
-	Date	Bor	ing Cor		1	05/16/00	Duke Engineering & Services.	BORING M	W2	_2A	
-	:	<u> </u>		USAL (	1		A Duke Energy Company		-	- d F	
L		ota	l Depth	of Hole	: 89.9	•		Page 1 of 8			<del></del>

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery © (in.)	SOIL DESCRIPTION	nscs	Piez.	( <b>£</b> ) 764.7
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		-			-	Set NW Casing down to 28.5'. Run Fallling Head Permeability at 28.5'. k=1.07E-05 cm/sec.	l	ł	
		1.		<del>├</del>	1	Set NW Casing down to 28.5. Run raining nead Permeability at 26.5. <u>R-1.072-No Gilliassa.</u>			
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30		Ì			1		Ì	L	754.7
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				-	-			1	744.7
40_	-	$\dashv$	1		┪		- 1	ļ	/
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			1				ļ		
		1			_		ļ		
	-	4			4				
	1			-	-				
		-			1				İ
45					1				739.7
Sample Types S:split spoon U				S:split	spoon	UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive streng	th tes	it	
					784.7				
			Elev. (fi	1	7 84.7 5/16/200	Duke Engineering  & Services.  BORING MW	/2-2	2A	
		oring Lo			CAM/MF	A Duke Energy Company			

(t) Usepth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)					SOI	L DESCRIPTION	<b>I</b>				nscs	Piez.	(£) 739.7
45_	n/a				n/a	· · · · · · · · · · · · · · · · · · ·											-	739.7
																i		
-				-														
-																		
50_																		734.7
					-													
					ļ													
	-																	
				. "	1													•
					-													700.7
55_					1													729.7
					]													
		Ì		<u> </u>	1													
					1													
				ļ	<u> </u>												·	
		1	Ì.		1													
60_	ļ				]													724.7
1				-	-													
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		]			1													
			ŀ	-	-											*		
					]													
	ļ	1			]													1
65				-	1	<u> </u>												
"		1			j '													719.7
	<u> </u>	4			4													1.
					-													
ŀ		1.			1	Note: Sp	lit Spoor	ns taken e	very 5' do	wn to 64.0'	in Boring # MW2-2	2.						
		4		-	4													
			68.6'	5														
		514		25		S14, N=	56, Olive	e, slightly ı	micaeous,	fine ot coa	se SILTY SAND.					SM		
70			70.1	31		<u>L</u>			·	<del></del>				· · · · · · · · ·			<u> </u>	714.7
-						JD:3" dia.	thin wa	Il tube	Lab Tes	ts G:grain	size A:Atterberg	Limit U:un	confined	compre	ssive stre	ngth te	st	
ļ	Ground S				784.7 5/16/2000				)uke	Engir	neering		R	ORIN	IG M	W2-	2Δ	
-	Date Bo			╫					k <b>Ser</b> Duke Energy C				0			₩ <i>6</i>	<u></u>	
L	Во	ring Lo	gged By	<u>:  C</u>	CAM/MFS	il					· · · · · · · · · · · · · · · · · · ·		<del></del>	P	age 3 of 8			

(11) Indac   70	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	CON DESCRIPTION	nscs	Piez.	714.7
70	<u>အ</u>	Ø Z	စ	<u> </u>	<u> </u>	SOIL DESCRIPTION	7	-	714.7
-								П	
					1		.		
			İ				1		
	,								
				-		Rotary/Carbide Refusal @ 72.8'		. 1	
						Rock Core from 72.8' to 89.9'.			
	- 1					Set NW Casing to 73.5'.		.	
						Run Falling Head Permeability from 73.5' to 89.9'. <u>k=5.45E-06 cm/sec</u> .			
75_									709.7
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BO	ļ				-			1	704.
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85_	<u> </u>	1		-	1				699
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	<u>                                     </u>	1			_				
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		1			1				
95		1			1				689
<i>0</i> J	-	<u> </u>	<del>-</del>	1			-u-	-4	1.00
	Sa	mple 7	ypes	S:split s	spoon	JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive streng	n te	3 <b>t</b>	
. (	Fround S	Surface	Elev. (ft)	1	784.7	- Duko Enginocuing			
		ring Cor			/16/2000	<b>Duke Engineering</b> & Services.  BORING MV	V2-	2A	
		ring Log		1	AM/MF	A Duke Energy Company			
	150	ning Log	личи ву	., 0	- AM/MIT	, <sub>i</sub> Page 4 016			

Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC	ROCK DESCRIPTION	REMARKS	RQD
72.8	0.0		711.9		72.8', Carbide refusal	Run 7.1' from 72.8' to 79.9', Rec=2.7', RQD=0. 72.8' to 80.1', Severe to complete weathering.	
, , 2.0			711.3		Light brownish gray, medium to moderately hard, fine-grained, micaeous FLASER GNEISS. (Recovered material only).	Recovered material moderate to moderately severe weathering.	
					(Necovorod Material Only).		
	0.5						
73.8	1.0		710.9				
	1.5						
	_						
	_		700.0				
74.8	2.0		709.9				
	_						
1	2.5						
	=						
	_						
75.8	3.0		708.9				
	_						
	3.5					·	
76.8	4.0		707.9				
}		-					
	_	1				77.2', JOINT, low dip, open, SI Fe/Mn-staining.	٠.
	4.5	1				77.4', JOINT, low dip, open, SI Fe/Mn-staining.	
	_	-		1,0		77.5', JOINT, low dip, open, SI Fe/Mn-Staining. 77.6', JOINT, steep dip, open, SI Fe/Mn-staining.	
			700.0	NQ 38		77.6', JOINT, steep dip, open, SI Fe/Mn-staining. 77.6', JOINT, low dip, open, SI Fe/Mn-staining. 77.8', JOINT, low dip, open, SI Fe/Mn-staining.	0
77.8	5.0		706.9			177.0, JOHNI, low dip, open, of Fermit-Staining.	
Client		Power	Company	<u> </u>	Coring Terminated @ 89.9'	BORING MW2-2A	
Projec	:t:				Date Drilled: Permit 5/17/2000	DEPTH INTERVAL 72.8' to 77.8'	
Projec	t No.:		ek Ash La		Logged By:		
Samp	ample i le inter	No: val:	080.00.000		MFSchaeffer/CAMedlin Comments:	Duke Engineering & Services.  A Duke Energy Company	
No	Water Return During Core? No				Page 5 of 8		

	g	-						1
Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC				ğ
3 6	ž E	S 8	ilev	22				🛎
-	<u>x</u>				ROCK DESCRIPTION		REMARKS	
77.8	5.0-		706.9					
			, 00.0				·	
	· <del>-</del>		A				70 41 1016TT tour die annu Enfishe stelleine	
							78.1', JOINT, low dip, open, Fe/Mn-staining. 78.3', JOINT, low dip, open, Fe/Mn-staining.	
1	5.5						78.4', JONT, low dip, open, Fe/Mn-staining.	1
		li			, e		78.4', JOINT, steep dip, open, SI Fe-staining.	
							78.5', JOINT, low dip, open, Fe/Mn-staining.	
							78.6', JOINT, low dip, open, Fe/Mn-staining.	ļ
8.8	6.0		705.9				78.7', JOINT, low dip, open, Fe/Mn-staining.	I
0.0	0.0		705.9					
							79.0', JOINT, steep dip, open, no staining.	
- 1							79.1', JOINT, low dip, open, Fe/Mn-staining.	i i
	6.5-	1					79.2', JOINT, low dip, open, Fe/Mn-staining. 79.3', JOINT, low dip, open, Fe/Mn-staining.	
	0.5-						79.3', JOINT, low dip, open, reministrating.	
							79.4', JOINT, low dip, open, Fe/Mn-staining.	.
l							79.6' JOINT, steep dip, open, no staining.	.
[				l			79.7' to 79.9', 4 JOINTs, low dip, open, staine	ed.
79.8	7.0		704.9				Run 10' from 79.9' to 89.9', Rec=10.0', RQD=	6.5'.
.							80.0', JOINT, low dip, open, Fe/Mn-staining.	· · ·
l				·	80.1'		80.1', JOINT, low dip, open, Fe/Mn-staining.	
					Very light gray to light gray, I	nard to very hard,	80.1' to 89.9', Slight to very slight weathering	
	7.5–				fine- to medium-grained BIO	TITE GNEISS (biotite-		
		1			quartz-feldspar).		· ·	
			ļ					
								- 1
80.8	8.0		703.9					1
				ĺ				
	8.5				•			
		1		2				
		1	l					İ
		1						
81.8	9.0	·	702.9					- 1
		1		·				1
		1						
			1					
	9.5-	-[						- [
		1		1				1
		1	1					
								.
82.8	10.0-	-	701.9	1				
					-			
lient:	-	-	<u> </u>	<u></u>	Coring Terminated @ 8	39.9'		
	Duke Power Company				In-r- Ball-2	BORING MW2-2A		
Project:  Belews Creek Ash Landfill - Permit			Permit	Date Drilled: 5/17/2000	DEPTH INTERVAL 77.8' to 8	2.8'		
rojec	roject No.:   Logged By:			1				
	00003.08.0080.00.00000         MFSchaeffer/CAMedlin           ab Sample No:         Comments:				MFSchaeffer/CAMed	Duke Engineerin	na	
ab Sa Iamol	ab Sample No: Comments:				Comments:	Duke Engineering & Services.	<u> </u>	
Water Return During Core?					A Duke Energy Company			
0			-				Page 6 of 8	

_2	Core		Ε.					
Boring Depth (ft)	Ğ.€	Core Sketch	Elev. (ft)	REC				RQD
호텔	용트	이 됐	<u> </u>	25				ĕ
~ ŏ	Rock (fl	"	ш		ROCK DESCRIPTION		REMARKS	
82.8	10.0		701.9					
		1 1						
		ll						
							83.2', JOINT, Steep dip, open, no staining,	
	10.5	l					quartz-calcite.	
·		1 I					83.4', JOINT, low dip, open, no staining,	
1					*		calcite-quartz.	
		1 1						
83.8	11.0		700.9				83.8', JOINT, low dip, open, no staining.	
					-			
		ll		1.0			·	
				i				
	11.5	l			•		84.3', JOINT, steep dip, open, no staining.	
		1 1						
				ŀ			· · · · · · · · · · · · · · · · · · ·	
		į. I		l				
84.8	12.0-		699.9	l	· ·			
				1				
				1	·			
							No.	
		1 1						
	12.5-	1		NQ			85.3', JOINT, low dip, open, no staining.	
		1 1		100	•		85.4', JOINT, low dip, open, no staining.	65
		1		ĺ				
		ł		1			·	
		1		ŀ				
85.8	13.0	1	698.9	1			85.8', JOINT, low dip, open, no staining.	
	_	·		1				
		1						
	l	1					86.1' JOINT, low dip, open, no staining.	
		·l			1			
	13.5-	1						
		-						
		·						
		-			i			
		-					·	
86.8	14.0-	1	697.9	Ì	1.			
	-	}	l	J				
	-	1	ŀ	l				
	-	1	I	1	• *			1
	-	1	1					
	14.5-	1	l	Į	1			1
		1	l	1	1			
	l –	1	I	1	1		87.5', JOINT, Steep dip, open, no staining.	
		-[			1			
		1	l	1	1		87.7' JOINT, Medium dip, open, no staining.	1
87.8	15.0-	1	696.9	ì	1		1	
			<u> </u>	1	1			Į
			<u> </u>	<u> </u>				<u></u>
Client:					Coring Terminated @ 8	19.9'		
	Duke I	Power	Company		· · · · · · · · · · · · · · · · · · ·		BORING MW2-2A	
Ргојес				7		Date Drilled:		_
	Belew	s Cree	ek Ash Lar	ndfill - P	ermit	5/17/2000	DEPTH INTERVAL 82.8' to 87.8'	,
Projec		-			Logged By:		<b>1</b>	
		.08.00	80.00.000	000	MFSchaeffer/CAMed	lin	Dude Engineering	-
	ample f	No:			Comments:		Duke Engineering & Services.	
Sampl	e Inter	val:						
Water	Return	Duri	ng Core?				A Duke Energy Company	
no	ater Return During Core?				Page 7 of 8			

Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC			Rab
	&		ш		ROCK DESCRIPTION	REMARKS	
87.8	15.0-		696.9				
	15.5-						
						88.6' to 89.8', QUARTZ VEIN, steep dip.	
						00.0 to 05.0, QOANTZ VEIN, steep dip.	
88.8	16.0-		695.9			88.9', JOINT, low dip, open, no staining.	
	16.5-					89.3', JOINT, steep dip, open, no staining.	
	-					book , convi, elect up, open, no canning.	
						89.7', 2 JOINTs, low dip, open, no staining.	
89.8	17.0-		694.9				
				<u> </u>	Coring Terminated @ 89.9'		
					Set NW Casing to 73.5'. Run Falling Head Permeability from 73.5' to 89.9'.		
	17.5				k=5.45E-06 cm/sec		
	_						
90.8	18.0		693.9				
	18.5		<u> </u>				
04.0	40.0		692.9				
91.8	19.0		092.9	ļ			
	 19.5						
İ						+ W	
92.8	20.0		691.9				·
Client:		owe	r Company	,	Coring Terminated @ 89.9'	BORING MW2-2A	•
Projec	t:				Date Drilled:	DEPTH INTERVAL 87.8' to 89.9	.
Projec	t No.:		ek Ash La		Logged By:	DEFINITERVAL 07.0 to 09.9	
Lab Sa	ample N	lo:	080.00.000	000	MFSchaeffer/CAMedlin Comments:	Duke Engineering & Services.	
Sampl Water	e Interv Return	/al: Duri	ng Core?		<u>·</u>	A Duke Energy Company	
no	er Return During Core?				Page 8 of 8		

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION		USCS	( <b>(((((((((((((</b>	
ן י	n/a				nya					
		1		-						
		-								
	<u> </u>		4.0'							
5	Ì	Si		<u>2</u> 3		S1, Yellowish brown, slightly micaeous, fine SANDY SILT. (G,A), LL=34.0, I	PI=8.0.	ML	789.2	
"			5.5	5		51, 13131131 51311, 51g/kg/ 111033333, 1110 51413 1 51211 (197-1), and a said				
		-								
		İ								
		7								
		-								
			9.0'							
		3503				UD1, Pushed 0.9', Rec=0.7'. End of Tube bent.			784.2	
11	<u>'  </u>			4		Bag sample collected from auger cuttings, 0' to 10'.		ML		
		S2		13		S2, Yellowish brown, slightly micaeous, fine SANDY SILT with some weather	ered rock fragments.	ML	779.2	
		51.51.41	11.4	13						
		1								
		-	ļ Į	ļ —	1					
			14.0							
	_		V		-				7700	
1	5					UD2, Pushed 2.0', REC=2.0'.			779.2	
			<b>1000</b>							
		52		32		S3, Yellowish brown, slightly micaeous, fine SANDY SILT.		ML		
			17.5	1		, , , , , , , , , , , , , , , , , , , ,				
	-	4								
			19.0'							
	_		<i> X////////</i>			UD3, Pushed 1.0', REC=1.0'.			774.2	
2	0		<i>[]([])</i> [][][]	Bioplit o		Bag sample collected from auger cuttings, 10' to 20'.  JD:3" dia. thin wall tube  Lab Tests G:grain size A:Atterberg Limit U:	inconfined compressive strer		774.2	
.	-	Water L				Project Information	Equipment ID	1	ner/Drop	
				Depth o		Client: Duke Power Company	Casing / Augers: 3.25"	n/a		
	Date	Time	Cas-	Hole	Wa		Split spoon 1:	Autom	atic	
	05/09/00	8:00a	none	40.7	DRY	Project No.: 00003.08.0080.00.00000	Split spoon 2:	Autom	atic	
_	05/10/00	5:00p	none	40.7	DRY	Location: Belews Creek, North Carolina	Core Barrel ID: n/a		····	
-	05/11/00 5:00p 61.8 59.3 47.5			59.3'	47.5'	Drilling Contractor: DE&S	Core Barrel Type: NQ Boring Logged By: CAMe	dlin/ME9		
$\vdash$					J	Drillers: Jim Barker/Ricky Dickard Drill Rig: CMS	Borning Logged By: CAME			
-	Date Boring Completed: 05/10/00  AUGER REFUSAL @ 40.7'					Duke Engineering  & Services.  BORING M			3	
					<del></del> -	A Duke Energy Company	· I			
	Total Depth of Hole: 59.3 Page 1 of 6									

th (ft)	Casing Blows/ft	<u>p</u>	iple th (ft)	/ SA	Recovery (in.)		ဖွ		Elev. (ft)
# ODepth (ft)	Cas Blov	Sample No.	Sample Depth (ft)	Blows 6"	L/a	SOIL DESCRIPTION	USCS	Piez.	<b>6</b> <b>11</b>
20 #	iva	54	20.5	50/6°	IVa	S4, Yellowish brown, slightly micaeous, fine to medium, SILTY SAND (weathered rock).	SM		4
					! !				
		-							
	·		24.0'						
			24.0	8					
25_		<b>S</b> 5		12		S5, Yellowish brown, slightly micaeousl, fine SILTY SAND.			769.2
			25.5	16			SM		
					]				
				ļ					
					1				
}			29.0'			Large bag sample of auger cuttings from 20' to 30'.			
						UD4, Pushed 1.6', REC=1.6'. Lab tests include G-Grain Size, Soil Classification (USCS)	ML		
30		20034			-	A-Atterburg Limits, Total Porosity, and Saturated Hydraulic Conductivity. LL=NP, PI=38; UW=93.8pcf; SG=2.72; Por=0.45; k=5.58E-05 cm/sec.	(G)		764.2
		\$6		13		S6, Yelllowish brown, slightly micaeous, very fine SILTY SAND.	SM		
			31.5	50/5"					
					1				
					1				
			34.0'						
35		<b>S</b> 7		16		S7, Yellowish brown, slightly micaeous, fine SILTY SAND. (G,A), LL=32, PI=3.	SM		759.2
-			35.4	50/5*	1		(G)		
		-			1				
				<del> </del>	1				ı
		1			]				:
					1				
			39.0'		1				
		S8	00.0	12		S8, Yellowish brown, slighlty micaeous, fine <b>SANDY SILT</b> .	ML		
40_	ļ		39.7	50/3*					754.2
			·		1	Bag sample collected from auger cuttings, 30' to 40'.  Auger Refusal @ 40.7'		誾	.3
		1				Set NW Casing down auger hole to 40.9'. Start coring with NQ barrel at 40.9'		旧	
	ļ <u>.</u>	4			1	Rock Core from 40.9' to 59.3'.		圓	
					-	Monitoring Well Installed. See installation sheet for details.  Screened Interval from 39.3' to 59.3'.			
ļ					1	Result of Slug Test: k=7.8E-05 cm/sec.			
	<u> </u>	4						閫	
45	1				-			旧	749.2
45	Sa	mple 7	vpes s	S:split s	spoon I	UD:2" dia. thin wall tube	ath te	⊥⊟ st	1 143.2
			Elev. (ft)		794.2		gu. 10	<del></del>	
			npleted:	Π.	/10/2000	Duke Engineering  BORING M  BORING M	W2	-3	
	Во	ring Log	ged By	C	AM/MFS	A Duke Energy Company			

Boring Depth (#) Rock Corre (#) Core Sketch Elev. (#)	ROCK DESCRIPTION		REMARKS	RQD	
	Auger Refusal at 40.7'		TEMATO .		
40.9 0.0 753.3	Set NW Casing to 40.9'.  Pinkish gray to light brownish nard to hard, fine- to medium-	gray, moderately	Run 8.4' from 40.9' to 49.3', Rec=7.7', RQD=4.0' 40.9' to 42.9', Moderate to slight weathering.		
	GNEISS (feldspar augen).	granicu AUGEN	41.2', Fracture parallel to S, no staining.		
0.5			41.4', Fracture parallet to S, no staining. 41.5', JOINT, steep dip, open, no staining. 41.6', Fracture parallel to S, no staining.		
41.9 1.0 752.3			41.8', Fracture parallell to S, no staining. 41.9', Fracture parallel to S, no staining. 42.0', Fracture parallel to S, no staining.		
1.5—					
			42.7', Fracture parallel to S, no staining.		
	42.9'Light brownish gray, moderate		42.9' to 44.0', Core loss and core broken along medium to high angle joints.		
	to coarse-grained MICA SCHI material only).	IST (recovered			
2.5—					
43.9 3.0— 750.3					
	44.0'Light gray to medium light gra	w hard fine to			
	medium-grained schistose MI (muscovite/biotite-quartz-felds	CA GNEISS	44.3', Fracture parallel to S, no staining.		
3.5	(muscovite/biotitie-quartz-ieius	spai ).	44.4', Fracture parallel to S, no staining. 44.5', JOINT, steep dip, open, no staining.		
			44.7' to 44.9', 4 Fractures parallel to S.		
<b>44.9 4.0</b> 749.3 92				48	
			45.2', Fracture parallel to S, no staining. 45.3' to 45.5', 3 Fractures parallel to S.		
4.5—					
			45.6' to 45.7', 3 Fractures parallel to S.		
<b>45.9 5.0</b> — 748.3					
Client:	Coring Terminated @ 59	9.3'	PODING MAG 2	L	
Duke Power Company Project:	<u>li</u>	Date Drilled:	BORING MW2-3	_	
Belews Creek Ash Landfill - Pe Project No.: 00003.08.0080.00.00000	rmit Logged By: MFSchaeffer/CAMedli	5/10/2000	DEPTH INTERVAL 40.9' to 45.9'		
Lab Sample Interval: Water Return During Core?	Comments:	11	Duke Engineering & Services		
no, lost water at 40.9'			A Duke Energy Company Page 3 of 6		

г т	<b>a</b>	- 1							1
<u>5</u> €	Rock Core (ft)	흔덩	Elev. (ft)	REC				ROD	
Boring Depth (ft)	ξĒ	Core Sketch	Elev	1				œ.	Ì
	ĸ	$\dashv$			ROCK DESCRIPTION		REMARKS		1
45.9	5.0		748.3						ı
	· . —								l
							46.2' to 46.6', 8 Fractures parallel to S.		1
			į		•				
	5.5								
	-				46.6'				l
					Light gray to medium light gra fine- to medium-grained schist	y, hard to very hard,			1
46.9	6.0		747.3		(muscovite/biotite-quartz-felds				١
10.5	0.0		1,41.0		(maddo marka quanz rosa	· ·			ŀ
							47.2', Fracture parallel to S, no staining.		l
							47.2, Flacture paramer to 5, no staining.		1
	6.5							ŀ	
									ı
47.9	7.0		746.3						ı
	_						48.1', Fracture parallel to S, no staining.		L
	-								1
1	7.5								1
ļ							48.5', Fracture parallel to S, no staining.		1
	-			į					
									l
48.9	8.0-		745.3	1					1
1								Į	١
				1			49.3', Fracture parallel to S, no staining.	İ	ı
	8.5	1		L	<u> </u>		Run 10' from 49.3' to 59.3', Rec=10.0', RQD=8.1'.		┨
	8.5-	1					NGD-6.1.		ı
		·			·			ļ	l
	-	1		1				Ī	ļ
49.9	9.0-		744.3				49.9', Fracture parallel to S, no staining.	1	1
	-	-						ŀ	
		1			·			Į.	
1	_	-[		1			50.3', Fracture parallel to S, no staining.	I	1
	9.5-	1	1	1					1
		]					50.6' to 50.9, 3 Fractures parallel to S, no	1	
1	[ -	1	1	1			staining.	1	
50.9	10.0-		743.3					1	1
				1				1	Ī
Client	1	<u> </u>	<u> </u>			9.3'		<del></del>	┪
Ciretii	lient: Duke Power Company		Joseph Tolling Co.	<del></del>	BORING MW2-3				
Proje	ct:					Date Drilled:	DEDTI ( NITED) ( 4. 45 0) ( - 50 0		١
		s Cre	ek Ash La	ndfill - I		5/10/2000	DEPTH INTERVAL 45.9' to 50.9	,	-
Proje	ct No.: 00003	3.08.0	00.00.080	000	Logged By: MFSchaeffer/CAMedli	in	Dr.ko Enginoaring		٦
	ample	No:			Comments:		Duke Engineering & Services.		
	ole Inter		ng Core?	-			A Duke Energy Company		╛
			40.9 (ft)				Page 4 of 6		

Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC	ROCK DESCRIPTION		REMARKS	Rab
-								
50.9	10.0-		743.3	·	*			
								ļ
l i								1
								1
1 1	10.5-							
1 1								
					·		51.6', Fracture parallel to S, no staining.	
								ľ
	44.0	1	740.0					
51.9	11.0		742.3					
		1 1					52.1', Fracture parallel to S, no staining.	
1		<b>!</b>					52.1, Tracture paramet to 6, no stamming.	. 1
		ΙI						
	11.5-							li
1								
		li						
					· ·			
52.9	12.0		741.3					
		1		l			53.0' to 53.8', Copre broken along medium and	
						•	steeply dipping JOINTS, no staining.	
1								
		1		1				1
1	12.5-	1 1						1 1
1	-	1 1						
		1 1						1 (
	=	1						
53.9	13.0-	1	740.3	1				{
53.9	13.0-		740.3					
		1		l			· ·	l i
1				l		•		i l
. 1	l				*			1 1
	13.5-			l				
1				NQ				
1		-		100	*			81
		-		•				1 1
İ		-					54.8' to 55.1', 4 Fractures parallel to S.	
54.9	14.0-	-	739.3	i .				
}		-		l				
ì		-						
		1						
	<b> </b>	1		[			1	
1	14.5-	1		1				ļ
	1 -	]	l	1				
	_	]						
	<u> </u>		ļ		•			
55.9	15.0-	-[	738.3	1				
1		1		1				
<u> </u>	<u>L</u>		<u> </u>	<u></u>				1
Client					Coring Terminated @	59.3'		
		Power	Compan	у			BORING MW2-3	
Projec						Date Drilled:		
		s Cré	ek Ash La	ndfill - F	Permit	5/10/2000	DEPTH INTERVAL 50.9' to 55.9	) <b>*</b>
Projec	t No.:				Logged By:			
	00003		00.00.08	000	MFSchaeffer/CAMe	edlin	Duke Engineering	
Lab S	ample i	No:			Comments:		Duke Engineering & Services	
Samp	le Inter	val:					A Duke Energy Company	
			ng Core?				Page 5 of 6	<del></del>
no,	iost wa	ter at 4	10.9 (ft)				rage 5 01 6	

	ø							1		1
Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC					ROD	
<del>-</del> -	œ				ROCK	DESCRIPTION		REMARKS		ı
55.9	15.0		738.3							
										l
		1								
										1
	15.5									
										l
										l
56.9	16.0		737.3							l
		ŀ						57.1', Fracture parallel to S, no staining.		l
		1		İ						١
	16.5									l
1	10.5									ĺ
										ĺ
					1					
57.9	17.0-		736.3							l
										l
										l
					1					١
	17.5		i							l
										l
										l
					1.					l
58.9	18.0		735.3		ļ					۱
					l					l
	l —				ĺ			14		ŀ
	l				Corin	g Terminated @ 59.3'				4
	18.5				Rock	Core from 40.7' to 59.3'	•			Ì
					Monit	oring Well Installed. Se	e installation sheet for o	details.		ı
1					Scree	ened Interval from 39.3'	to 59.3'.			
59.9	19.0		734.3	l						l
59.9	19.0-		734.3							I
					1					١
										l
	19.5									١
<b>!</b> .	l –			1.						l
	<b>!</b>									١
ļ .				1	l					ı
60.9	20.0		733.3	1	İ.					Ì
					ļ					l
Client:		Ower	Company	<u> </u>	1	Coring Terminated @ 5	9.3'	BORING MW2-3	<u> </u>	1
Projec	t:	0.101	Jonipuli	•		:	Date Drilled:			
	Belews	s Cree	k Ash La	ndfill - F	Permit		5/10/2000	DEPTH INTERVAL 55.9' to 59.3'		1
Projec	t No.:	00.00	80.00.000	200		Logged By: MFSchaeffer/CAMedi	in			4
Lab Sa	ample N		00.00.000	JUU	<u> </u>	MFSchaeπer/CAMedi	III.	Duke Engineering & Services.		
Sampl	e interv	/al:	<u> </u>					A Duke Energy Company		
Water	Return lost water	Durii er at 4	ng Core?					A Duke Energy Company Page 6 of 6		┨
,0,	HOL	J. W. 7	~·~ \!'\				the state of the s			_

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (In.)	SOIL DESCRIPTION		-	nscs	Plez.	Elev. (ft)
6_	n/a	σz	<u> </u>	8.6	n/a	SOIL DESCRIPTION				a 12	812.2
									·		
1	- :			·							
			4.0'								
				2							
5_		<b>5</b> 1		2		S1, Yellowish brown, slightly micaeous, fine SANDY SILT. (G,A), LL=53, PI=	15.		MH		807.2
			5.5'	3					<del>(</del> G)		
		·	·								
			9.0'								
						Bag sample from auger cuttings, 0' to 10'.					
10		A90A				UD!, Pushed 2.0', REC=2.0'.					802.2
ŀ			28888	2							
		<b>S2</b>		3		S2, Yellowish brown, slightly micaeous, fine SANDY SILT.			ML		
			12.5	4					٠.		
			·								
			14.0'		-						
				9							
15_	ļ	<b>S</b> 3		4		S3, Yellowish brown, slightly micaeous, fine SANDY SILT.			ML		797.2
Ì			15.5	5							
ŀ	ļ			<u> </u>							
											a 1
		ļ	1		1						
			19.0'	ļ	1						
					1	Bag sample from auger cuttings, 10' to 20'.					
20	<u> </u>				l	UD2, Pushed 2.0', REC=1.6'. Lab tests include G-Grain Size. Soil Classificate	tion (USCS),	<u> </u>	ML.		792.2
	Sa	mple T	ypes §	s:split s	poon l	D:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:u	nconfined compressiv	e streng	gth te	st	
<u> </u>	W	ater L	evel Re	eading	s	Project Information	Equipment	ID	Har	nme	r/Drop
ļ		· · · ·	Cas-	Depth o	of (ft)	Client: Duke Power Company	Casing / Augers:	3.25"	<u> </u>		
<u> </u>	Date	Time	ing	Hole	Wat	Project: Belews Creek Ash Landfill - Permit	Split spoon 1:		Auto	mat	ic
05	/09/00	4:00p	0.0	38.0	DRY	Project No.: 00003.08.0080.00.00000	Split spoon 2:	-	Auto	mat	ic
05	/10/00	7:30a	0.0	38.0	DRY	Location: Belews Creek, North Carolina	Core Barrel ID:	n/a			
05	/11/00	5:00p	60.0	58.0	45.4	Drilling Contractor: DE&S	Core Barrel Type:				
		1		<u> </u>	<u></u>	Drillers: Jim Barker/Ricky Dickard Drill Rig: CMS	Boring Logged By:	CAMed	lin/M	FS	<del></del>
	Date Bo	ring Cor	npleted	:	)5/10/00	Duke Engineering & Services.	<b></b>	<b>.</b>			
	AUG	ER REF	USAL @	38.0			BORIN	M' ی	vv2	-4	
Total Depth of Hole: 58.0' Page 1 of 6											

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION	nscs	Piez.	(£) Elev. (£)
20_	n/a				n/a	A-Atterburg Limits, and Total Porosity. LL=NP, PI=NP; UW=82.1pcf, SG=2.88; Por=0.51.	(6)		
		3	22.5	4 5 8		S4, Yellowish brown, slightly micaeous, fine <b>SANDY SILT</b> .	ML		
25_		1157	24.0'			UD3, Pushed 2.0', REC=1.6'. UD tube bent along side by a rock.			
		85	27.5	18		S5, Yellowish brown, slightly micaeous, fine SANDY SILT with a seam of quartz near 27.5'.  (G,A), LL=NP, PI=NP.	(6)		
30_		88	29.0' 29.3'	50/3*		UD refused to push at 29.0'. SS, No recovery. Large bag sample from auger cuttings, 20' to 30'.			782.2
35_		56	34.0'	16 30 50/3*		S6, Yellowish brown, slightly micaeous, fine SANDY SILT with some weathered rock fragments.	ML		777.2
						Large bag sample from auger cuttings, 30' to 38'.  Auger Refusal @ 38.0'————————————————————————————————————			
40_		1				Monitoring Well Installed. See Installation Sheet for Details.  Screened Interval from 38.0' to 58.0'.  Result of Slug Test: <u>k=7.4E-04 cm/sec</u> .			772.2
45								_1	767.2
-						UD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:unconfined compressive stree	ngth te	est	
			Elev. (ft)		812.2 5/11/200	<b>Duke Engineering</b> & Services.  BORING N	1W2	-4	
	Date Doining Completion.				A Duke Energy Company				

Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC	BOOK DESCRIPTION	and the second second second second second second second second second second second second second second seco	REMARKS	Rab
$\dashv$	~				ROCK DESCRIPTION		Run 8.4' from 38.0' to 46.4'. Rec=7.1',	
38.0	0.0—		774.2		Auger Refusal @ 38.0' Light brownish gray to mediur moderately hard, coarse-grain (with quartz-rich layers).	n light gray,	RQD=1.5'. 38.0' to 42.4', Moderately severe to moderate weathering. 38.3', JOINT, steep dip, open, sl Fe/Mn-staining.	
1					(······ <b>1</b> ·····)			
	0.5—						38.6', JOINT, low dip, open, Fe/Mn-staining. 38.7', JOINT, low dip, open, Fe/Mn-staining.	
39.0	1.0—		773.2				39.0', JOINT, low dip, open, Fe/Mn-staining. 39.1', JOINT, low dip, open, Fe/Mn-staining. 39.2' to 40.0', Core broken.	
		1	-					
	1.5				39.4' Medium dark gray, moderatel grained HORNBLENDE GNE	ly hard, medium-		
					39.7'Light brownish gray to mediumoderately hard, coarse-grain			
40.0	2.0		772.2		(with quartz-rich layers).			
	_						40.2' to 40.5', Core broken.	
	2.5			l	40.5'		40.5', JOINT, low dip, open, Fe/Mn-staining.	
				1	Medium dark gray, moderate grained HORNBLENDE GNE	ly hard, medium- EISS.	40.7', JOINT, steep dip, open, sI Fe/Mn-staining. 40.8', JOINT, low dip, open, Fe/Mn-staining.	
	-						·	
41.0	3.0		771.2				41.1', JOINT, low dip, open, Fe/Mn-staining.	
	3.5							
	_	-[			<b>.</b>			
					Light brownish gray to mediu moderately hard, coarse-grain		41.8', JOINT, low dip, open, Fe/Mn-staining. 41.9' to 43.0', Core broken along medium to	
42.0	4.0-	-	770.2		(with quartz-rich layers).		steeply dipping JOINTS, Fe/Mn-staining.	
	4.5-				42.4'Light gray to very light gray,	moderately hard,	42.4' to 44.7', Moderate weathering.	
	_			NQ 85				18
43.0	5.0-	-	769.2					
Client	-	Davis	r Compan	1	Coring Terminated @ 5	58.0'	BORING MW2-4	L
Projec		r-owe	Compan	y		Date Drilled:		
	Belew		ek Ash La		Logged By:  MFSchaeffer/CAMed	5/9/2000	DEPTH INTERVAL 38.0' to 43.0	•
Samp	ample le inter	No: val:	ing Core?		Comments:		Duke Engineering & Services.  A Duke Energy Company	
			38.0 (ft)				Page 3 of 6	

r - 1	. 1		- 1						
Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC				l l	Rab
	Ř	_		,	ROCK	DESCRIPTION		REMARKS	$\dashv$
43.0	5.0-		769.2					43.0', JOINT, low dip, open, Fe/mn-staining.	l
								1	
. i	-							·	
					İ				
	5.5							43.5', JOINT, low dip, open, Fe/Mn-staining.	
	-								
		l	-		1			As at 101017 westless the ones of staining	
								43.8', JOINT, medium dip, open, sl-staining. 43.9', JOINT, low dip, open, Fe/Mn-staining.	١.
44.0	6.0		768.2		1			44.0', JOINT, low dip, open, Fe/Mn-staining.	1
17.0	-		. 00.2					44.1', JOINT, low dip, open, Fe/Mn-staining.	- 1
					l			44.2', JOINT, low dip, open, Fe/Mn-staining.	- 1
					1				ı
	6.5			·					1
	0.5~				1			1	
				ļ	1			44.7' to 47.6', Moderately severe to moderate	. [
								weathering.	. [
								44.7' to 46.4', Core broken/loss.	- 1
45.0	7.0		767.2	1	Ì				
		i		<b>1</b>	1				ı
			-	ĺ					
					1				
	7.5-				l				
								1	
				1	1			·	l
	_				1				
46.0	8.0		766.2						ł
İ					l				
		1		l	1			·	
1					46.4'	**************************************		46.4' to 46.5', Core broken.	
	8.5				Mediu	m dark gray, moderate	ly hard, medium-	Run 7.5' from 46.4' to 53.9', Rec=6.6',	
1	<b> </b>	·l			graine	d HORNBLENDE GNI	EISS.	RQD=0.7'.	
l.		1	1	•					
	-				46.8'			i l	
47.0	9.0-	]	765.2	1	[1]				
77.3	"		'00.2	ı	47,1'				
1	-	-			Mediu	m dark gray, moderate	ely hard, medium-	47.2', JOINT, steep dip, open, sl-staining.	
	-	1		1	graine	d HORNBLENDE GN	EISS.	47.3' to 47.5', Core broken.	
1	9.5-	1						ŀ	
	9.5-		1	1	47.6'-			47.6' to 50.3', Moderate to slight weathering.	
		.[		1	Light	gray to very light gray,	moderately hard to		
1	-	-	1	1	hard,	fine- to medium-graine	d schistose MICA	47.8', JOINT, steep dip, open, sl-staining.	
1	-	-			GNE	SS (muscovite/biotite-c	quartz-feldspar).	1	
48.0	10.0-	1	764.2	4					
i	1			1					
Client		Powe	Compan	<u> </u>		Coring Terminated @	58.0'	BORING MW2-4	
Projec							Date Drilled:	<b> </b>	
		s Cre	ek Ash La	ndfill - F	Permit	<u>.</u>	5/9/2000	DEPTH INTERVAL 43.0' to 48.0'	
Projec	ct No.:					Logged By:			
1 ch C	00003 ample l		080.00.00	000		MFSchaeffer/CAMed Comments:	Ilin	Duke Engineering & Services.	
	ample l le inter					Comments:			
Water	Return	n Duri	ng Core?					A Duke Energy Company	
			38.0 (ft)					Page 4 of 6	

						<del></del>		
Boring Depth (ft)	Rock Core (ft)	Core Sketch	Elev. (ft)	REC	ROCK DESCRIPTION		REMARKS	RQD
	nz	$\vdash$			ROCK DESCRIPTION		REMARKS	
48.0	10.0		764.2		·		48.0', JOINT, low dip, open, Fe/Mn-staining.	
10.0							48.2', JOINT, low dip, open, Fe/Mn-staining.	
					1		48.2', JOINT, steep dip, open, sI-staining.	
					·		48.3', JOINT, low dip, open, Fe/Mn-staining.	
1							48.4' to 48.5', 3 JOINTs, low dip, staining.	
	10.5	i 1					40.4 (0 40.0 , 0 00 11 (1 0, 10 11 dip) occurring.	
	10.5							
*							48.7', JOINT, low dip, open, Fe/Mn-staining.	
.		1		4			48.7', JOINT, steep dip, open, sl-staining.	
				1	Ì		48.9', JONT, low dip, open, Fe/Mn-staining.	
	44.0		700.0				40.9, JOINT, low dip, open, i envir-staining.	
49.0	11.0		763.2	i			40.41 IOINT law din open Fo/Ma staining	
							49.1', JOINT, low dip, open, Fe/Mn-staining.	1 1
				1			49.2', JOINT, low dip, open, Fe/Mn-staining.	
		1		1			49.3', JOINT, low dip, open, Fe/Mn-staining.	1 . 1
		1 1		l			49.3', JONT, steep dip, open, sl-staining.	1
	11.5			I	İ		49.5', JOINT, medium dip, open, sl-staining.	
				I			49.6', JOINT, low dip, open, Fe/Mn-staining.	
				] .				
				1	1		49.8' to 50.0', 4 JOINTs, low dip, staining.	
50.0	12.0-		762.2		1		1	l i
				l			1	
		.		l				
				1	50.3'		50.3' to 51.2', Complete to very severe	
					Medium light gray, soft to me	edium hard, medium-	weathering.	
	12.5			l	to coarse-grained MICA SCI		,	
.					J			
	-			1				
-4.0			704.0	1				
51.0	13.0	1	761.2				E4 Olds E9 Ol Maderate to clight woothering	
				1	54.01		51.2' to 58.0', Moderate to slight weathering.	
		1		1	51.2'		51.2', JONT, low dip, open, Fe/Mn-staining.	
		1		l	Light gray to very light gray,		51.3', JOINT, low dip, open, Fe/Mn-staining.	
		1			medium-grained, schistose l	VIICA GNEISS. [2]	51.4', JOINT, steep dip, open, sl-staining.	
	13.5	1					51.5', JOINT, low dip, open, Fe/Mn-staining.	
		1			1		51.6', JOINT, low dip, open, Fe/Mn-staining.	
	-	·		l			51.7', JOINT, low dip, open, Fe/Mn-staining.	
				1				
'	l		l	1			51.9' to 52.1', 4 JOINTs, low dip, open, staining.	
52.0	14.0-	.[	760.2	1				
				l				1
	l		l	1	1.			
		.]	l					
	l _		[					
l	14.5-		1	1				1
				1			52.6', 2 JOINTs, low dip, open, Fe/Mn-staining.	1
	l	1	l		1		and a second sec	1
	I _	1	1		1		52.8', JOINT, low dip, open, Fe/Mn-staining.	1
	-		I	1			52.9', JONT, low dip, open, Fe/Mn-staining.	1
53.0	15.0		759.2	1	İ		oz.e, corti, towarp, open, i enim-stanning.	1
33.0	'5.0	Ί	108.2	1				1
l	1	1	İ .	1	1			1
Client:		<u> </u>		1	Coring Terminated @	58.07		<u>.t</u>
Cirent:		n -			Coming Terminated @	JU.U	BORING MW2-4	
		ower	Compan	у	_ <u></u>		- DUKING MVVZ-4	
Projec	t:					Date Drilled:		
	Belew	s Cree	ek Ash La	ndfill - F	Permit	5/9/2000	DEPTH INTERVAL 48.0' to 53.0	1*
Projec	t No.:				Logged By:			4
L	00003	.08.00	00.00.080	000	MFSchaeffer/CAMed	llin	Duka Engineering	-
	ample t				Comments:		Duke Engineering & Services.	
	e Inter							
			ng Core?				A Duke Energy Company	
no,	ost wat	er at 3	38.0 (ft)				Page 5 of 6	
	_							

## ROCK DESCRIPTION REMARKS    15.0-	/In-staining. open. =4.1', /In-staining.
53.0 15.0- 15.5- 15.5- 53.7', JOINT, low dip, open, Fe/M 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Run- RQD=0.7'.  54.6' Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  55.0 17.0- 757.2 55.0' [2]	An-staining. An-staining. open. =4.1', An-staining.
53.0 15.0- 15.5- 15.5- 54.0 16.0- 16.5- 16.5- Medium dark gray, moderately hard, medium-grained HORNBLENDE GNEISS.  53.3', JOINT, low dip, open, Fe/N 53.8' to 53.9', 3 JOINTs, low dip, open, Fe/N 54.3', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N	/In-staining. open. =4.1', /In-staining.
53.0 15.0	/In-staining. open. =4.1', /In-staining.
53.3', JOINT, low dip, open, Fe/M 53.8' to 53.9', 3 JOINTs, low dip, open, Fe/M 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Runs RQD=0.7'.  54.6'————————————————————————————————————	/In-staining. open. =4.1', /In-staining.
54.0 16.0- 16.5- 16.5- Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  53.7', JOINT, low dip, open, Fe/N 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Runs RQD=0.7'.  54.3', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N	/In-staining. open. =4.1', /In-staining.
54.0 16.0- 16.5- 16.5- Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  53.7', JOINT, low dip, open, Fe/N 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Runs RQD=0.7'.  54.3', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N	/In-staining. open. =4.1', /In-staining.
54.0 16.0- 16.5- 16.5- Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  53.7', JOINT, low dip, open, Fe/N 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Runs RQD=0.7'.  54.3', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N	/In-staining. open. =4.1', /In-staining.
53.7', JOINT, low dip, open, Fe/N 53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Runs RQD=0.7'.  54.6'————————————————————————————————————	open. =4.1', //n-staining.
53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Run RQD=0.7'.  54.0 16.5- 16.5- 16.5- Medium dark gray, moderately hard, medium-grained HORNBLENDE GNEISS.  55.0 17.0- 757.2 55.0'	open. =4.1', //n-staining.
53.8' to 53.9', 3 JOINTs, low dip, Run 4.1' from 53.9' to 58.0', Run RQD=0.7'.  16.5- 16.5- Medium dark gray, moderately hard, medium-grained HORNBLENDE GNEISS.  54.6'————————————————————————————————————	open. =4.1', //n-staining.
54.0 16.0- 16.5- 16.5- Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  54.0'	=4.1', //n-staining.
54.0 16.0	∕ln-staining.
16.5— 16.5— Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 55.0 17.0— [2]	
16.5- 16.5- Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 55.0' [2]	
16.5— 16.5— Medium dark gray, moderately hard, medium- grained HORNBLENDE GNEISS.  54.5', JOINT, low dip, open, Fe/N 54.5', JOINT, low dip, open, Fe/N 55.0 17.0— [2]	
54.6'————————————————————————————————————	/n-staining.
54.6'————————————————————————————————————	
55.0 17.0- 757.2 55.0'	
55.0   17.0- 	]
	·
Medium dark gray, moderately hard, medium-	
grained HORNBLENDE GNEISS. 55.4', 2 JOINTs, low dip, open, s	
17.5- 55.5', JOINT, low dip, open, Fe/N	√In-staining.
FE 7/ to FE 91 2 IOINTO lourdin	onon
NQ 55.8', 3 JOINTs, low dip,	17
Very light gray to light gray, hard to very hard,	
56.0 18.0- 756.2 fine- to medium-grained, schistose MICA	·
GNEISS. 56.1', JOINT, low dip, open, Fe/N	vin-staining.
56.3', JOINT, low dip, open, Fe/N   56.4', JOINT, low dip, open, Fe/N	
18.5-	viit stairing.
56.6', 3 JOINTs, low dip, open, s	staining.
_	
56.8' to 57.9', JOINT, steep dip,	open, si Fe/Mn-
staining, calcite-fquartz.	
<b>57.0 19.0 7</b> 55.2	
-	ļ ·
-	
19.5-	
	· ·
-	
58.0 20.0- 754.2 Coring Terminated @ 58.0'	<u> </u>
Client:   Coring Terminated @ 58.0'	
Duke Power Company  BORING M	W2-4
Project: Date Drilled:	
Belews Creek Ash Landfill - Permit 5/9/2000 DEPTH INTERVAL	53.0' to 58.0'
Project No.: Logged By:	
00003.08.0080.00.00000 MFSchaeffer/CAMedlin Duke Eng	ineerina
00003.08.0080.00.00000 MFSchaeffer/CAMedlin  Lab Sample No: Comments:  Sample Interval:   Duke Engline English English English English	
Water Return During Core?  A Duke Energy Company	S.
no, lost water at 38.0 (ft)	Page 6 of 6

o Deput (it)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (in.)	SOIL DESCRIPTION			SSS		8.91 8.91
۲-	11/4				.,,,	and the second s	<del>salaran da da da da da da da da da da da da da </del>				
									CL ML	84	
								. [			
			4.01								
			4.0'	3							
5_		81		5	s	1, Yellowish red, slightly micaeouts, fine SILTY CLAY.			CL	84	11.8
			5,5	7				i			
			9.0								
				3	'						
10_		<b>S</b> 2		3		2, Yellowish to light red, slightly micaeous, very fine SANDY SILT.			ML	83	36.8
			10.5	5							
								•			
				-							
					1					8.7	
		<b>.</b>	14.0	ļ	1 1						
				2							
15_	<del> </del>	S3		6		<ol><li>Yellowish to light red, slightly micaeous, very fine SANDY SILT with som</li></ol>	e rock fragments.		ML	8	31.8
			15.5	-	1 1						
		1			]						
	<u> </u>							·			
				-	1					8	
					1						
			19.0	E BERRE 1650	]						
20				7 12	1	arge bag sample from auger cuttings, 10' to 20'.  4, Yellowish brown, slightly micaeous, very fine SANDY SILT.			ML	8	26.
20	<u> </u>	S4 mple T	vnee 9			D:3" dia. thin wall tube  Lab Tests G:grain size A:Atterberg Limit U:u	inconfined compressive	e streno		<u>a</u>	
				eading		Project Information	Equipment	ID		mer/D	roi
		racer E	1		of (ft)	Client: Duke Power Company	Casing / Augers:				
	Date	Time	Cas-	Hole			Split spoon 1:		Autor	natic	
	Jale	Inte	9	110.0	1100	Project No.: 00003.08.0080.00.00000	Split spoon 2:	<del>, :</del>	Autor	-	
•					1	Location: Belews Creek, North Carolina	Core Barrel ID:	n/a			
					1	Drilling Contractor: DE&S	Core Barrel Type:				
					1	Drillers: Jim Barker/Ricky Dickard Drill Rig: CMS	Boring Logged By:		in/MF	S	
	Date Bo	ring Co	npleted		05/11/00						
			USAL @			Duke Engineering  & Services.	BORING	S MI	<b>N2</b> -	5	
			of Hole			A Duke Eurgy Company	Page 1	of 6			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery ® (in.)	SOIL DESCRIPTION		SOSO	Piez.	(t) Elev. (t) 826.8
20_	TVa		20.5	13	IVa					
			24.01							
			24.0'	9				ML ML		
25_		<b>\$</b> 5		15		S5, Yellowish brown, slightly micaeous, very fine SANDY SILT.		ML		821.8
1			25.5	18						
	ļ									
		2014/34/5-17	29.0'							
30		<b>\$6</b>	30.0	25 50/6**		S6, Yellowish brown, slightly micaeous, very fine SANDY SILT with some roo	k fragments.	ML		816.8
"-	<del> </del>		50.0	1000						0.00
									H	
		1			]					
		1			]					
			34.0		}				Ш	
		\$7	34.5	50/6"		S7, Yellowish brown, slightly micaeous, very fine SILTY SAND.		SM	劃	
35_	<u> </u>								▮.	811.8
1					1					
		1			1					
			1		1	•				
		}	38.5'	<u> </u>	┨	SS. No penetration.				
		SS	38.5	50/0"	1	Auger refusal @ 38.5'			劃	
	<u> </u>	-			4	Set NW Casing to 38.8'. Start coring with NQ barrel at 38.8'				
40		1			†	Rock Core form 38.8 to 58.3'. Install Monitoring Well. See Installation Sheet for Details.				806.8
-	1	1	1		1	Screened Interval from 34.0' to 54.0'.			텕	
		-		-	4	Result of Slug Test: <u>k=9.9E-04 cm/sec.</u>				
					1					
		1			]					
	<u></u>	-			-					
	1				1					
					]					
45	<u></u>	1		<u></u>	<u> </u>			لـــــــــــــــــــــــــــــــــــــ		801.8
				T		JD:3" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit U:u	ncontinea compressive stren	ıgın tes	st .	
	Bround S				846.8 /11/2000	Duke Engineering & Services.	BORING M	W2-	·5	
		ring Log		+	AM/MFS	A Duke Energy Company	Page 2 of 6			

	0	-			<del></del>		1	1
₽€	Core	۾ چ	£	,,				۵
Boring Depth (ft)	Rock Co (ft)	Core Sketch	Elev. (ft)	REC				Z C
# S	20	O 20	ü	, <u></u>	DOCK DESCRIPTION		REMARKS	
	Ř.				ROCK DESCRIPTION		REMARKS	
		1	700.0	<u> </u>	Auger Refusal @ 38.5'.		Run 9.7' from 38.8' to 48.5', Rec=9.2',	
38.8	0.0		788.0	ŀ	NW Casing Set to 38.8'	to very light grow	RQD=1.8'.	Ì
					Pinkish gray to very pale orang hard, fine-grained FLASER G	ge to very light gray,	38.8' to 46.6', Moderate weathering.	
						VE133 (quartz-	39.1', JOINT, medium dip, open, Fe/Mn-staining.	
					feldspar-mica).		39.1' to 39.6', JOINT, steep dip, open, stained.	l . I
							39.3', JOINT, medium dip, open, Fe/Mn-staining.	
	0.5						139.3, 30/141, medium dip, open, revim-stammig.	
				l			39.5', JOINT, low dip, open, Fe/Mn-staining.	
		1		i	·			
			-	ł			39.6', JOINT, low dip, open, Fe/Mn-staining. 39.7', JOINT, medium dip, open, Fe/Mn-staining.	
							39.8', JOINT, medium dip, open, Fe/Mn-staining.	
39.8	1.0	l	787.0	i			139.6, JOHAT, Medium dip, open, 1 emin-staining.	l i
·		li		1				ll
		i		i			·	
				1	1		40.3', JOINT, low dip, open, Mn-staining.	i I
	1.5				1		40.0, JOHAT, IOW CIP, OPER, MIT-Statisting.	[
					l			
.			,	ŀ				
		1			1 -			1 I
		1		1	1		40 PL IOINT lovedin onen Ma steining	
40.8	2.0		786.0				40.8', JOINT, low dip, open, Mn-staining. 40.8' to 41.5', JOINT, steep dip, partially open,	
		1			1		Fe/mn-staining.	
	_	1					re/mn-staining.	1 1
		1	İ	1	ł		44 OL TOTAL Law disconner Fo/Ms etaining	1 1
		1		1			41.2', JOINT, low dip, open, Fe/Mn-staining.	
	2.5	1		i				
		1					41.5', JONT, low dip, open, sl Fe-staining.	
				Į .	1		41.5' to 43.4', Core broken along steeply	
	_	1		l				
							dipping JOINTs, heavy Fe/Mn-staining.	
41.8	3.0	1	785.0	1				i l
		1	ł	1				
		1		1				1
l	-	1						1
		1						1
	3.5	1		Ĭ .	1			
l		1	1	Į.			•	
1		1		1				
1		1		1	1			
	l	1			1			
42.8	4.0-	1	784.0	1			1	
	-	1	1	1	l		43.0', 2 JOINTs, steep dip, open, heavy Fe/Mn-	
I	I -	1	l	1	1		staining.	
l	l –	1		1	ı		43.2', JOINT, low dip, open, Fe/Mn-staining.	l
1	1	1	l	1			To.2, contri, lost dip, opon, i entili-staining.	
I	4.5	1	1	1			1	
1	i -	1	1		1			1
l		1	1.				43.6', JOINT, low dip, open, Fe/Mn-staining.	1
	1 -	1	ľ	1	1		43.7' JOINT, low dip, open, Fe/Mn-staining.	1
420	5.0		783.0	1	.1		Total Court, for ele, open, i elimi eliming.	1
43.8	3.0	1	1 '03.0	1	1		·	
1	1	1	1					1
Client	<del></del>		-		Coring Terminated @ 5	B.3'		
		Powe	r Compan	v.			BORING MW2-5	
Projec		. 5,46	. Compan	,		Date Drilled:	<b>-</b>	
1		ie Cro	ek Ash La	ndfill - I	1	5/11/2000	DEPTH INTERVAL 38.8' to 43.8	3'
Drain	et No.:	/s UIE	CK ASII LE	u IOIIII - I	Logged By:	3,11/2000	-	
Frojec		ያ በደ ሳ	080.00.00	nnn	MFSchaeffer/CAMedi	in		
l sh e	ample				Comments:		Duke Engineering & Services.	
Samo	ampie le Inter	val:			Comments.		[ # & Servicēs	
Water	Retur	n Duri	ing Core?	,			A Duke Energy Company	
no							Page 3 of 6	
- /-								

ROCK DESCRIPTION  REMARKS	
TO 문 ROCK DESCRIPTION REMARKS	RaD
43.8 5.0- 783.0 NQ	
— 95 44.1', JOINT, low dip, op	en, Fe/Mn-staining.
44.1' to 44.5', JOINT, ste	
5.5 staining.	
44.6' to 45.0', JOINT, ste	eep dip, open, Fe/Mn-
staining.	
44.8 6.0— 782.0	
45.0' to 46.6', Core broke angle and medium dippir	en along several low ng JOINTs, Fe/Mn-
staining.	
6.5-	
	1 1
<b>45.8 7.0</b> 781.0	
7.5-	
46.6' to 58.3', Slight wea	othering
Very light gray to light gray, hard to very hard, 46.6' to 47.2', JOINT, sto	
46.8 8.0- 780.0 fine-grained FLASER GNEISS (quartz-feldsparmica). 46.9', JOINT, low dip, tig	oht. calcite.
	, , ,
8.5- 47.4', JOINT, low dip, o	nen Fe/Mn-staining
47.5', JOINT, medium d	ip, open, Fe/Mn-stain.
47.6', JOINT, low dip, of 47.7', JOINT, low dip, of	
47.8 9.0- 779.0 47.8', JOINT, low dip, o	
48.1', JOINT, low dip, o <sub>1</sub> 48.2', JOINT, low dip, o <sub>2</sub>	pen, Fe/Mn-staining. pen, Fe/Mn-staining.
9.5-	
48.4', JOINT, steep dip, 48.4' to 49.3', JOINT, st	
staining.	
48.8 10.0- 778.0 Run 9.8' from 48.5' to 5 RQD=8.6'.	8.3', Rec=9.8',
Client: Coring Terminated @ 58.3'  Duke Power Company BOR	ING MW2-5
Project: Date Drilled:	RVAL 43.8 to 48.8'
Project No.: Logged By:	INTAL TOO TO TOO
00003.08.0080.00.00000 MFSchaeffer/CAMedlin  Lab Sample No: Sample Interval:  Comments:  Comments:	Engineering vices.
Water Return During Core?  A Duke Energy Core.	Page 4 of 6

्रा	ē							
Boring Depth (ft)	k Core (ft)	Core Sketch	Elev. (ft)	REC				S D
R S	Rock (ft	S S	. ii		ROCK DESCRIPTION		REMARKS	-
								**
48.8	10.0-		778.0					
								-
	-				4.			
- 1	10.5						49.3', JOINT, steep dip, tight, calcite.	
							49.7', JOINT, steep dip, open, sI Fe-staining.	
49.8	11.0-		777.0				40.7, 00mm, steep dip, open, or re dammig.	
							50.0', JOINT, low dip, open, sI Fe-staining.	1
							boto, goner, low dip, opon, are o claiming.	
	11.5							
					•			
*							To all tollits of the state of	. :
50.8	12.0-		776.0				50.8', JOINT, steep dip, open, calcite, no stain.	
-	12.5-				+		51.3', JOINT, steep dip, tight, calcite, vuggy.	*
							51.3', JOINT, low dip, open, no staining.	
	_						51.6', 2 JOINTs, steep dip, partially open,	
51.8	13.0-		775.0				calcite, vuggy, no staining.	
	_			1				
	13.5							
	13.5						52.4', JOINT, low dip, open, no staining.	
	_	1					52.6', JOINT, steep dip, open, sl Fe-staining.	
							52.0, 60 HVT, Steep dip, open, or 1 o samming.	
52.8	14.0-	1	774.0				52.9', JOINT, steep dip, open, sl Fe-staining.	
	_	-	i				5210, COMMI, 5100P CIP, SPON, CIT O COMMING.	
							·	
	14.5-	-		l				1
	_	1		NQ 100				88
	-	-					53.6', JOINT, low dip, open, vsl Fe-staining.	
53.8	15.0-	]	773.0	1				
		1			·			
Client		1	<u> </u>	<u> </u>	Coring Terminated @	58.3'		1
		Power	Company	/			BORING MW2-5	
Projec		s Cre	ek Ash La	ndfill - P	ermit	Date Drilled: 5/11/2000	DEPTH INTERVAL 48.8' to 53.8	•
Projec	t No.:				Logged By:			
Lab S	00003 ample l		080.00.000	000	MFSchaeffer/CAMed	ilin	Duke Engineering & Services.	
Samp	e Inter	val:	ng Core?				A Duke Energy Company	
vvater no	returr	. DUITI	ng core?				Page 5 of 6	
<u> </u>								

						·	
Boring Depth (ft)	ock Core (ft) Core	Sketch Elev. (ft)	REC				ROD
w \s	Rock F S	S 3	-	ROCK DESCRIPTION		REMARKS	_
53.8	15.0	773.0					
				· ·			1, 1
			<u> </u>				-
1 1	15.5						
1 1							
ıı							
1						54.7', JOINT, medium dip, open, no staining.	
54.8	16.0	772.0				out, , court, modain dip, open, no occurring.	
			1				
	16.5		1				
1 1		1					1. 1
		-					
55.8	17.0	771.0					
55.6	17.0	771.0					
1							l
		1					
			Ì	·			
	17.5					56.4', JOINT, low dip, open, calcite, sl Fe-	1
1 1				4		staining.	
1		1	Į.			Ottaining.	
							1 1
56.8	18.0	770.0				56.8', JOINT, low dip, open, vsl Fe-staining.	1 1
			1	·			
							i i
	18.5					57.3', JOINT, low dip, open, vsl Fe-staining.	1
				ŀ			
•				·		57.7', JOINT, low dip, open, vsl Fe-staining.	
57.8	19.0-	769.0				01.11 ; 00.111 ; 10.11 d.p.; 0pc.11, 10.11 c.	
			İ			57.9', JOINT, medium dip, open, vsl Fe-staining.	
						57.9', JOINT, low dip, open, vsl Fe-staining.	
	19.5			Coring Terminated @ 58.3	3'		
				1	· .		
	-						
58.8	20.0	768.0	1				[ ]
30.0	****	1 '00.0	1				
			<u>L</u>	<u> </u>	<u> </u>		
Client:				Coring Terminated (	<u>D</u> 58.3'		
		wer Company	у			BORING MW2-5	
Projec					Date Drilled:	DEDTU INTEDVAL 52 01 40 50 2	,
Projec		Creek Ash La	ndfill - P	Permit Logged By:	5/11/2000	DEPTH INTERVAL 53.8' to 58.3	
rojec		3.0080.00.000	000	MFSchaeffer/CAM	ledlin	During Francisco de la constante de la constan	
Lab Sa	ample No:			Comments:		Duke Engineering & Services.	
Sampl	e Interval	:				A Duke Energy Company	,
	Keturn D	uring Core?				Page 6 of 6	
no					The second secon	1 age o or o	

## **BORING LOG MW-2-7**

PROJECT:	Duke Power - Belews Creek	WATER LEVEL TOB (FT.):	17.9
PROJECT NO:	1264-02-576	WATER LEVEL 24 HRS (FT.):	18.54
PROJECT LOCATION:	Belews Creek, NC	TOP OF CASING ELEVATION (FT.):	778.28
DRILLING CONTRACTOR:	S&ME, Inc.	BORING DEPTH (FT.):	29
DRILLING METHOD:	3¼" H.S.A.	LOGGED BY:	S. Watts
DATE DRILLED:	11/14/2002		

STRATA					-	·	Ö	\X	<b>-</b>	
DESCRIPTION	SYMBOL	DEPTH (feet)	WELL DETAILS	DEPTH (feet)	TEGEND	SPT (N-value)	ELEVATION (feet)	RECOVERY (inches)	FID (feet)	WELL CONSTRUCTION DETAILS
Ground Surface		0.0					778.28			PROTECTIVE CASING Diameter: 4.0 in.
Light brown sandy SILT w/weathered rock fragments, dry, soil disturbed by bulldozer, (MH,ML,SM).		5.0				50/5	773.28	4		Type: Stick-Up Interval: 2.28 ft.  OUTER CASING Diameter: N/A Type: N/A Length: N/A RISER CASING
Dark yellowish orange to grayish orange silty gravelly SAND (SP,		-		8.9	CG	50/4	768.28	4		Diameter: 2.0 in. Type: Schedule 40 PVC Interval: 0.0 - 14.0 ft.
SM).		10.0		12.7 14	BS FP	50/0	763.28	0 53		GROUT Type: Portland Cement Interval: 0.0 - 8.9 ft.  SEAL Type: Bentonite Pellets
v/quartz-feldspathic gneiss, highly veathered, highly fractured. REC = 88.3% RQD = 0%		15.0					758.28	50		Interval: 8.9 - 12.7 ft.  FILTERPACK  Type: Filter Sand #2  Interval: 12.7 - 29.0 ft.
Tazer GNEISS interlayered w/quartz-feldspathic gneiss, highly weathered, highly fractured. REC = 83.3% RQD = 11.7%		20.0					753.28			SCREEN Diameter: 2.0 in. Type: Schedule 40 PVC Interval: 14.0 - 29.0 ft.
Laminated quartz-feldspar GNEISS, low angle fractures along bedding. REC = 100% RQD = 67.5%		25.0 - -						60	-	LEGEND
Boring terminated at 29.0 ft.		<b>.</b>		29	BSC					
									-	BSC = Bottom of Screen  REC = Core Recovery  RQD = Rock Quality Designation

NOTES:



SHEET 1 OF 1

## **BORING LOG MW-2-7A**

PROJECT: LOCATION:

Belews Creek, NC

PROJECT NO.: LOGGED BY: DATE DRILLED:

BORING DEPTH (ft): 27.5

1264-02-576A S. Watts 1/16/03

**Duke Power - Belews Creek** 

DRILLING CONTRACTOR: DRILLING METHOD:

S&ME, Inc. 31/4" H.S.A.

DRILL RIG:

B-53 TOP OF CASING ELEVATION (ft): 791.38 WATER LEVEL TOB (ft bgs): 25.5

WATER LEVEL 24 HRS (ft bTOC): 23.45

Sample Information						ool		Well Construction	all action hic	fion
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
5 —	SS-1	3.5-5.0	<b></b>	2			Dark yellow orange sandy SILT w/partially weathered rock (ML, SM), loose, crumbly, dry. Auger refusal at 9.0 ft.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.83 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 22.5 ft.		- - 786 - - - -
<u>-</u>	SS-2 R-1	8.5-9.0 9.0-10.5	 	0 12	0		Light gray to grayish orange highly	Grout		- 781 -
10 <del>-</del> -	R-2	10.5-15.5	<b></b>	50	0		weathered flaser GNEISS.  REC = 6%  RQD = 0%  Light gray to grayish orange highly weathered flaser GNEISS.	Type: Portland Cement Interval: 0.0 - 13.5 ft.		- -
- - 15 — - -	R-3	15.5-24		24	0		REC = 83% RQD = 0%  Light gray to grayish orange highly weathered flaser GNEISS w/silty sand from 16.2-17.0 ft. REC = 80%  RQD = 0%	Type: Bentonite Chips Interval: 13.5 - 19.0 ft.  Filterpack Type: Filter Sand #2 Interval: 19.0 - 27.5 ft.		- 776 - - - - - 771
- 20 — - -							V	Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 22.5 - 27,5 ft.		- - - - 766
- 25 — - -	R-4	24.0-27.5		44	0		Light gray, marroon, black highly weathered and fractured fine to medium hornblende and flaser GNEISS.  REC = 90%  RQD = 0%  Boring terminated at 27.5 ft.			-

#### NOTES

- = Split Spoon Sample
- = Shelby Tube Sample
- s = Bulk Sample
- = Core Run
- RS = Rock Sample REC = Rock Core Recovery
- RQD = Rock Quality Designation
- 1. 

  ▼ = Water Level At Termination of Boring
- 2. y = Water Level After 24 Hours



### **BORING LOG MW-2-8**

SHEET 1 OF 1

PROJECT: LOCATION: **Duke Power-Belews Creek** 

Belews Creek, NC 1264-02-576A

PROJECT NO .: LOGGED BY: DATE DRILLED:

S. Watts 12/18/2002

BORING DEPTH (ft): 24

DRILLING CONTRACTOR:

DRILLING METHOD:

DRILL RIG:

4¼" H.S.A. Mobile B-57

**Graham & Currie** 

TOP OF CASING ELEVATION (ft): 821.40 WATER LEVEL TOB (ft bgs):

WATER LEVEL 24 HRS (ft bTOC): 15.34

Sample Inf	formation		10	and the second s	NA II Constanting	l ction jic	ion ()
Depth (feet) Sample Number Sample interval (feet)	Blows per 6 inches	(inches) Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
- - - 15 - -	4-6-16	8		Crayish orange to dark yellow orange SAND, some relict structures w/clay minerals, slightly moist, stiff (SM).  Pale yellow to moderate yellow brown silty gravelly SAND w/weathered rock fragments and albite crystals, slightly moist (SM, SP).  Olive brown to moderate yellow brown silty SAND, moist, loose (SM).  Grayish green to dusky blue, dark green gray weathered GRANITE.  Orange to olive SAPROLITE with Iron and Manganese staining, slightly moist, loose and crumbly (SP, SM).  Auger Refusal - Boring Terminated at 24.0 ft.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 2.3 ft.  Riser Casing Dia: 2.0 in. Type: Sch 40 PVC Interval: 0.0 - 14.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 10.0 ft.  Seal Type: Bentonite Chips Interval: 10.0 - 12.3 ft.  Filterpack Type: Filter Sand #2 Interval: 12.3 - 24.0 ft.  Screen Dia: 2.0 in. Type: Sch 40 PVC Interval: 14.0 - 24.0 ft.		- 816 816 811 - 806 801 801

NOTES
SS = Split Spoon Sample
ST = Shelby Tube Sample

= Core Run

RS = Rock Sample

REC = Rock Core Recovery
RQD = Rock Quality Designation

1. Advanced 4 1/4-inch Hollow Stem Augers to refusal below existing grade.

2. Advanced NQ II core barrel to below existing grade.

4. y = Water Level After 24 Hours



31/4" H.S.A.

## **BORING LOG MW-2-9**

PROJECT: **Duke Power - Belews Creek** 

LOCATION: PROJECT NO .: LOGGED BY:

Belews Creek, NC 1264-02-576A J. Drummond

DATE DRILLED: 1/21/03 BORING DEPTH (ft): 14.5

DRILLING CONTRACTOR:

DRILLING METHOD:

DRILL RIG:

B-53 TOP OF CASING ELEVATION (ft): 798.04 WATER LEVEL TOB (ft bgs):

WATER LEVEL 24 HRS (ft bTOC):

SHEET 1 OF 1

S&ME, Inc.

	Sample Int	formation			-			_ tion ic	Б _
Depth (feet) Sample	Number Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
od	3-1 3.5-4.5	18-50-	2 87	O RO		Tan gravelly silty SAND w/weathered gnelss fragments, wet-saturated. Auger refusal at 4.5 ft.  Black, white, medium gray moderately fractured quartz rich flaser GNEISS. REC = 73% RQD = 69%  Boring terminated at 14.5 ft.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.78 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 2.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 1.0 ft.  Seal Type: Bentonite Chips Interval: 1.0 - 2.0 ft.  Filterpack Type: Filter Sand #2 Interval: 2.0 - 12.0 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 2.0 - 12.0 ft.		793 788 

NOTES
SS = Split Spoon Sample

= Shelby Tube Sample ST

= Bulk Sample = Core Run

RS

RS = Rock Sample REC = Rock Core Recovery

RQD = Rock Quality Designation

2. w = Water Level After 24 Hours



3118 Spring Forest Road Raleigh, NC 27616

SHEET 1 OF 2

#### **BORING LOG MW-2-10**

PROJECT: LOCATION:

**Duke Power - Belews Creek** 

Belews Creek, NC 1264-02-576A

PROJECT NO.: LOGGED BY: DATE DRILLED:

S. Warwick 1/21/02 **BORING DEPTH (ft): 46** 

DRILLING CONTRACTOR:

S&ME, Inc.

DRILLING METHOD:

31/4" H.S.A. CME-55

DRILL RIG: TOP OF CASING ELEVATION (ft): 817.53 WATER LEVEL TOB (ft bgs): 41.5

WATER LEVEL 24 HRS (ft bTOC): 36,95

								<del></del>	<del></del>	
	S	Sample Inf	ormation			-		Well Construction	Fig.	ion ()
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Details	Well Construction Graphic	Elevation (feet)
- - - 5 -	SS-1	3.5-5.0	5-5-9	18			Orange brown fine sandy SILT.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.85 ft.  Riser Casing Dia: 2.0 in.		- - 813 -
- - - 10 -	SS-2	8.5-10.0	5-7-8	18			Orange tan fine sandy SILT.	Type: SCH 40 PVC Interval: 0.0 - 31.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 25.0 ft.		- - 808 - -
- - 15 —	SS-3	13.5-15.0	6-7-9	18				Seal Type: Bentonite Chips Interval: 25.0 - 28.0 ft.		- 803 - -
- - - - 20 —	SS-4	18.5-20.0	7-11-12	18				Filterpack Type: Filter Sand #2 Interval: 28.0 - 46.0 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 31.0 - 46.0 ft.		- - 798 - - -
- - 25 -	SS-5	23.5-25.0	9-12-15	18			Tan fine sandy SILT.			- - 793 - - -
30 -	SS-6	28.5-30.0	19-17-20	18						- 788 
-	SS-7	33.5-35.0	4-7-21	18						  - 

NOTES
SS = Split Spoon Sample

= Shelby Tube Sample

SS ST S = Bulk Sample R

= Core Run

RS = Rock Sample REC = Rock Core Recovery RQD = Rock Quality Designation 1. 

▼ = Water Level At Termination of Boring

2. T = Water Level After 24 Hours



SHEET 2 OF 2

#### **BORING LOG MW-2-10**

PROJECT:

**Duke Power - Belews Creek** 

LOCATION: Belews Creek, NC **PROJECT NO.:** 1264-02-576A

LOGGED BY: DATE DRILLED:

**BORING DEPTH (ft): 46** 

S. Warwick

1/21/02

DRILLING CONTRACTOR:

DRILLING METHOD:

S&ME, Inc.

DRILL RIG:

31/4" H.S.A. CME-55

TOP OF CASING ELEVATION (ft): 817.53 WATER LEVEL TOB (ft bgs):

41.5 WATER LEVEL 24 HRS (ft bTOC): 36.95

<u> </u>		Sample Inf	ormation						tion	Ē
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
- 40 -	SS-8	38.5-40.0	7-14-50/4	18			Tan fine sandy SILT. (continued)  Tan brown PARTIALLY WEATHERED  ROCK samples as fine sandy SILT	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.85 ft.  Riser Casing		- - -778
- - - - 45 —	SS-9	43.5-44.5 45.5-46.0	36-50/3- 50/0	12		158 F8	w/intermittent soll layers.	Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 31.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 25.0 ft.		- - 773 -
_	23-1C	43.5-46.0	50/0				Auger refusal - boring terminated at 46.0 ft.	Seal Type: Bentonite Chips Interval: 25.0 - 28.0 ft.  Filterpack Type: Filter Sand #2 Interval: 28.0 - 46.0 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 31.0 - 46.0 ft.		

#### **NOTES**

- SS ST S = Split Spoon Sample
  - = Shelby Tube Sample
- = Bulk Sample
- R RS = Core Run
- = Rock Sample
- REC = Rock Core Recovery
- RQD = Rock Quality Designation
- 2. w = Water Level After 24 Hours



# BELEWS CREEK PINEHALL ASH LANDFILL GEOTECHNCIAL BORING – LOGS OB- SERIES

# N. C. Department of Human Resources Division of Health Services

## WELL COMPLETION RECORD

MPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE 'ARTMENT OF HUMAN RESOURCES, SOLID AND HAZARDOUS WASTE MANAGEMENT BRAN J. BOX 2091, RALEIGH, N.C. 27602 NAME OF SITE: PERMIT NO .: BELENS CREEK STEAM STATION 85-03 ADDRESS: OWNER (print): P.O. BOX 557, WALNUT COVE, NC 27052 -DUKE POLIER CO. DRILLING CONTRACTOR: REGISTRATION NO.: DUKE POHER CO. THEAVED TRUCC PVC dia. Zin. Grout Depth: from 5 to 30.0 ft. - dia. 6.2 from 30.0 to 33.0 ft. - dia. 6.2 from 33.0 to 86.7 ft. - dia. 1.2 asing Type: from O to 35.0 ft. - dia. Z in. Bentonite Seal: asing Depth: SCOT. 010 TREOC INC dia. Z in. Sand/Gravel PK: Screen Type: from 35.0 to \$5.0 ft. - dia. Z in. Total Well Depth: from 0 to \$6.9 ft. - dia. 6.2 Screen Depth: ratic Water Level: 74.5 feet from top of casing Date Measured 8/10 Casing is Z.5 feet above land su Yield (gpm): \_\_\_\_\_A Method of Testing: \_\_\_\_\_ DRILLING LOG LOCATION SKETCH DEPTH (show distance to numbered roads, or other map reference po-JM TO FORMATION DESCRIPTION OB-I SEE ATTACHED SOIL TEST BORNG FIELD REPORT EMARKS: THIS WELL IS FOR DETERMINATION OF WATER TABLE ONLY 8-11-89 SIGNATURE: Mario

SHEET 1 OF 2

## **BORING LOG OB-2**

PROJECT: LOCATION: **Duke Power - Belews Creek** 

PROJECT NO .: LOGGED BY:

Belews Creek, NC 1264-02-576A J. Drummond

1/22/03

DATE DRILLED: BORING DEPTH (ft): 45 DRILLING CONTRACTOR:

DRILLING METHOD:

S&ME, Inc. 31/4" H.S.A. CME-55

DRILL RIG:

TOP OF CASING ELEVATION (ft): WATER LEVEL TOB (ft bgs):

30.2 WATER LEVEL 24 HRS (ft bTOC): 33.23

-	Sample Information								8	-
Depth (feet)	Τ.	Sample interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
- - - 5 —	SS-1	3.5-5.0	4-1-2	18			Medium gray dense FLY ASH, slight moist.  Orange brown, tan micaceous fine sandy clayey SILT, moderately plastic,	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.94 ft.  Riser Casing Dia: 2.0 in.		
- - 10 —	SS-2	8.5-10.0	3-4-6	18			Medium stiff, slightly moist.  Orange brown, tan, mottled medium gray micaceous fine sandy clayey SILT, slightly plastic, medium stiff, moist.	Type: SCH 40 PVC Interval: 0.0 - 26.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 19.7 ft.		
- - - 15 —	SS-3	13.5-15.0	5-7-7	18			Tan, medium gray, light orange, white micaceous medium to coarse sandy SILT w/layering present (saprolite), slightly moist.	Seal Type: Bentonite Chips Interval: 19.7 - 23.0 ft.  Filterpack		
- - - 20 -	SS-4	18.5-20.0	12-13-14	18			Tan, medium gray, light orange, white, mottled black micaceous medium to	Type: Filter Sand #2 Interval: 23.0 - 45.0 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC		
- - - 25 -	SS-5	23.5-25.0	15-17-24	18			coarse sandy SILT w/layering present (saprolite), moist.	Interval: 26.0 - 41.0 ft.		
30 -	SS-6	28.5-30.0	50/4	18			,			
	SS-7	33.5-34.5	35-50-	12					<b>Y</b>	

NOTES SS = Split Spoon Sample SS ST

= Shelby Tube Sample = Bulk Sample

R = Core Run

RS = Rock Sample REC = Rock Core Recovery

RQD = Rock Quality Designation

1. ♀ = Water Level At Termination of Boring

2. 🗶 = Water Level After 24 Hours



#### **BORING LOG OB-2**

PROJECT: **Duke Power - Belews Creek** 

LOCATION: PROJECT NO.: LOGGED BY:

Belews Creek, NC

1264-02-576A J. Drummond

DATE DRILLED: 1/22/03 BORING DEPTH (ft): 45

DRILLING CONTRACTOR:

DRILLING METHOD:

S&ME, Inc. 31/4" H.S.A.

SHEET 2 OF 2

CME-55

DRILL RIG: TOP OF CASING ELEVATION (ft):

WATER LEVEL TOB (ft bgs): 30.2 WATER LEVEL 24 HRS (ft bTOC): 33.23

		Sample Inf	ormation						u o .	
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
- - - 40 - - -	SS-8		50/3.5 50/2	12			Tan, medium gray, light orange, white, mottled black micaceous medium to coarse sandy SILT w/layering present (saprolite), wet-saturated. (continued)	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.94 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 26.0 ft.		
45 —							Auger refusal - boring terminated at 45.0 ft.	Type: Portland Cement Interval: 0.0 - 19.7 ft.  Seal Type: Bentonite Chips Interval: 19.7 - 23.0 ft.  Filterpack Type: Filter Sand #2 Interval: 23.0 - 45.0 ft.		
	The state of the s							Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 26.0 - 41.0 ft.		

- NOTES SS = Split Spoon Sample
- = Shelby Tube Sample = Bulk Sample ST
- = Core Run
- RS = Rock Sample
- REC = Rock Core Recovery
- RQD = Rock Quality Designation
- 2. T = Water Level After 24 Hours



SHEET 1 OF 2

PROJECT:

**Duke Power - Belews Creek** 

LOCATION: PROJECT NO .: Belews Creek, NC 1264-02-576A

LOGGED BY: DATE DRILLED: BORING DEPTH (ft): 50.5

J. Drummond 1/22/03

DRILLING CONTRACTOR:

DRILLING METHOD:

S&ME, Inc. 31/4" H.S.A.

B-53

DRILL RIG: TOP OF CASING ELEVATION (ft):

WATER LEVEL TOB (ft bgs):

31.7

WATER LEVEL 24 HRS (ft bTOC): 31

	Sample Information		_			tion	LC.			
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock ROD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
-	SS-1	3.5-5.0	24-38-19	18			Medium gray dense FLY ASH, dry.  Medium gray dense FLY ASH, moist.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.89 ft.		-
5 10 -	SS-2	8.5-1.0	4-1-8	18				Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 25.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 18.5 ft.		- - -
15 -	SS-3	13.5-15.0	12-14-18	18			Tan, orange brown micaceous fine to	Seal Type: Bentonite Chips Interval: 18.5 - 22.3 ft.		-
20	SS-4	18.5-20.0	7-9-9	18			Tan, orange brown micaceous fine to medium sandy SILT, moist.  Tan, orange brown micaceous fine to medium sandy SILT w/layering present, moist.	Filterpack Type: Filter Sand #2 Interval: 22.3 - 50.5 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC	-	-
- - - 25 —	SS-5	23.5-25.0	14-17-3	18			Tan, light orange, light gray, white	Interval: 25.0 - 40.0 ft.	-	-
- - - 30 —	SS-6	28.5-30.0	16-13-20	18			micaceous fine to medium sandy SILT w/layering present (saprolite), moist.  Tan, light orange, light gray, black, white sandy SILT w/layering present, saturated.			
- -	SS-7	33.5-34.5	30-50-	12						

NOTES SS = Split Spoon Sample

= Shelby Tube Sample

SS ST S = Bulk Śample

= Core Run

RS = Rock Sample
REC = Rock Core Recovery
RQD = Rock Quality Designation

2. y = Water Level After 24 Hours



SHEET 2 OF 2

PROJECT:

**Duke Power - Belews Creek** 

LOCATION:

Belews Creek, NC

PROJECT NO.: LOGGED BY:

1264-02-576A J. Drummond

DATE DRILLED: 1/22/03 BORING DEPTH (ft): 50.5

DRILLING CONTRACTOR:

DRILLING METHOD: DRILL RIG:

S&ME, Inc. 31/4" H.S.A.

B-53

TOP OF CASING ELEVATION (ft):

WATER LEVEL TOB (ft bgs): WATER LEVEL 24 HRS (ft bTOC): 31

31.7

	Sample Information						5	T		
Depth	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
40 -	SS-8	38.5-39.5	50/5	12			Tan, light orange, light gray, black, white sandy SILT w/layering present, saturated. (continued)	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.89 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 25.0 ft.		-
- 45 -	SS-9	43.5-44.5	50/5	12			Tan, white, orange brown, mottled black	Grout Type: Portland Cement Interval: 0.0 - 18.5 ft.		- -
50 -		48.5-49.0	50/3	6			medium to coarse sandy SILT (saprolite), saturated.  Auger refusal - boring terminated at 50.5 ft.	Seal Type: Bentonite Chips Interval: 18.5 - 22.3 ft.  Filterpack Type: Filter Sand #2 Interval: 22.3 - 50.5 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 25.0 - 40.0 ft.		-

NOTES
SS = Split Spoon Sample
ST = Shelby Tube Sample

= Bulk Sample

R = Core Run
RS = Rock Sample
REC = Rock Core Recovery
RQD = Rock Quality Designation

2. ▼ = Water Level After 24 Hours



SHEET 1 OF 2

PROJECT:

**Duke Power - Belews Creek** 

LOCATION:

PROJECT NO.:

Belews Creek, NC 1264-02-576A

LOGGED BY: DATE DRILLED: J. Drummond 1/27/03

BORING DEPTH (ft): 53

DRILLING CONTRACTOR:

DRILLING METHOD:

DRILL RIG:

S&ME, Inc. 31/4" H.S.A.

CME-55

TOP OF CASING ELEVATION (ft): WATER LEVEL TOB (ft bgs):

WATER LEVEL 24 HRS (ft bTOC):

		Sample Ir	formation			-			ction iic	e C
Depth (feet)	Sample	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
5	SS-1	3.5-5.0	6-7-11	18			GRAVEL.  Medium gray dense FLY ASH, dry.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.81 ft. Riser Casing		
10	SS-2	8.5-10.0	5-3-2	18			Orange brown clayey fine to coarse sandy SILT, moist.  Medium gray dense FLY ASH, moist.	Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 16.3 ft.  Grout Type: Portland Cement Interval: 0.0 - 11.0 ft.		- - -
- - - 15 —	SS-3	13.5-15.0	29-50-	18				Seal Type: Bentonite Chips Interval: 11.0 - 14.0 ft.		- -
20 —	SS-4	18.5-20.0	11-11-14	18			Medium gray clayey silty fine to medium SAND, saturated.	Filterpack Type: Filter Sand #2 Interval: 14.0 - 53.0 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft.		
- - 25 —	SS-5	23.5-25.0	WR-WR-3	18						
30 —	SS-6	28.5-30.0	4-5-4	18						
-	SS-7	33.5-35.0	2-2-3	18					-	-

NOTES
SS = Split Spoon Sample
ST = Shelby Tube Sample

= Bulk Sample = Core Run

RS = Rock Sample
REC = Rock Core Recovery
RQD = Rock Quality Designation

2. ▼ = Water Level After 24 Hours



SHEET 2 OF 2

PROJECT:

Duke Power - Belews Creek

LOCATION:

Belews Creek, NC

PROJECT NO .:

1264-02-576A

LOGGED BY: DATE DRILLED: BORING DEPTH (ft): 53

J. Drummond

DRILL RIG:

1/27/03

DRILLING CONTRACTOR: DRILLING METHOD:

S&ME, Inc. 31/4" H.S.A. CME-55

TOP OF CASING ELEVATION (ft): WATER LEVEL TOB (ft bgs):

23 WATER LEVEL 24 HRS (ft bTOC):

	Sample Information				· · · · · ·				T	5	
	Depth (feet)	1	<del>,</del>	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
	-	55-8	38.5-39.5	2-3-3	12			Medium gray clayey silty fine to medium SAND, saturated. <i>(continued)</i>	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.81 ft.		-
	- 40 -		30.3-33.3	2-5-5	12			Medium gray, black, white gravelly coarse SAND, saturated.	Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 16.3 ft.		-
4	- -  5 — 	SS-9	43.5-44.5	1-2-3	12			Medium gray to black silty SAND, moist to wet.	Grout Type: Portland Cement Interval: 0.0 - 11.0 ft.		-
5	- - - 0 —	SS-10	48.5-49.0	50/.25	6				Seal Type: Bentonite Chips Interval: 11.0 - 14.0 ft.		-
	-					<u>.</u>		Auger refusal - boring terminated at	Filterpack Type: Filter Sand #2 Interval: 14.0 - 53.0 ft.		-
									Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 16.3 - 31.3 ft.		
								,			

### NOTES

SS ST = Split Spoon Sample

= Shelby Tube Sample

= Bulk Sample

R = Core Run
RS = Rock Sample
REC = Rock Core Recovery
RQD = Rock Quality Designation

2. 💌 = Water Level After 24 Hours



SHEET 1 OF 2

### **BORING LOG OB-5**

PROJECT: LOCATION:

**Duke Power - Belews Creek** 

Belews Creek, NC

PROJECT NO .: LOGGED BY: DATE DRILLED: 1264-02-576A J. Drummond

1/27/03 BORING DEPTH (ft): 60

DRILLING CONTRACTOR:

DRILLING METHOD:

DRILL RIG:

31/4" H.S.A.

S&ME, Inc. CME-55

TOP OF CASING ELEVATION (ft):

WATER LEVEL TOB (ft bgs): 30 WATER LEVEL 24 HRS (ft bTOC): 31

	Sample Information					<u>7</u>			ic	LO
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counfs per 6 inches	Recovery (inches)	ROCK RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
5 —	SS-1	3.5-5.0	4-5-7	18			GRAVEL.  Tan, orange brown, black, white fine to coarse sandy SILT w/layering present, moist.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.79 ft.  Riser Casing Dia: 2.0 in.		- - - -
- - - 10 -	<b>SS-2</b>	8.5-1.0	7-8-8	18				Type: SCH 40 PVC Interval: 0.0 - 21.8 ft.  Grout Type: Portland Cement Interval: 0.0 - 15.0 ft.		- -
- - 15 —	SS-3	13.5-15.0	5-7-8	18			Orange brown, mottled white and black fine sandy SILT w/layering present, moist.	Seal Type: Bentonite Chips Interval: 15.0 - 18.0 ft. Filterpack		- - -
- - - 20 -	SS-4	18.5-20.0	7-9-10	18				Type: Filter Sand #2 Interval: 18.0 - 36.8 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC		-
- - - 25 —	SS-5	23.5-25.0	<b>4-6-</b> 7	18				Interval: 21.8 - 36.8 ft.		- - -
30 —	SS-6	28.5-30.0	5-7-8	18			Light gray, orange brown, tan, fine to medium sandy SILT, moist.			-
-	SS-7	33.5-34.5	5-8-8	12						-

### NOTES

- = Split Spoon Sample SS
- = Shelby Tube Sample ST
- = Bulk Sample
- = Core Run
- RQD = Rock Quality Designation
- RS = Rock Sample REC = Rock Core Recovery
- 1. 

  ▼ = Water Level At Termination of Boring
- 2. **y** = Water Level After 24 Hours



SHEET 2 OF 2

## **BORING LOG OB-5**

PROJECT: LOCATION:

PROJECT NO .:

**Duke Power - Belews Creek** 

Belews Creek, NC 1264-02-576A

LOGGED BY: DATE DRILLED: J. Drummond 1/27/03

BORING DEPTH (ft): 60

**DRILLING CONTRACTOR:** 

**DRILLING METHOD:** 

DRILL RIG:

S&ME, Inc. 31/4" H.S.A.

CME-55

TOP OF CASING ELEVATION (ft): WATER LEVEL TOB (ft bgs):

30 WATER LEVEL 24 HRS (ft bTOC): 31

		Sample Int	formation	<del>.</del>		100			c Eion	Ē
Depth (feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
- - - - 40 -	SS-8	38.5-39.5	5-6-9	12			Light gray, orange brown, tan fine to medium sandy SILT w/black and white layering (seams), wet.  Tan, black, white silty fine to coarse SAND, wet-saturated.	Protective Casing Dia: 4.0 in. Type: Stlck-Up Interval: 1.79 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC		-
45 —	SS-9	43.5-44.5	11-26-36	12				Grout Type: Portland Cement Interval: 0.0 - 15.0 ft.		- - - -
50 —	SS-10	48.5-49.0	31-50/.4-	6				Seal Type: Bentonite Chips Interval: 15.0 - 18.0 ft.  Filterpack		-
55 —	SS-11	53.5-54.0	50/3	6			Gray-brown silty fine to coarse SAND, saturated.	Type: Filter Sand #2 Interval: 18.0 - 36.8 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 21.8 - 36.8 ft.		- - - -
- 60 -	SS-12	58.5-59.0	50/2	6			Auger refusal - Boring terminated at 60.0 ft.			-  -  -
NOT										

NOTES
SS = Split Spoon Sample
ST = Shelby Tube Sample
S = Bulk Sample

= Core Run

RS = Rock Sample REC = Rock Core Recovery

RQD = Rock Quality Designation

1. 

▼ = Water Level At Termination of Boring

2. 💌 = Water Level After 24 Hours



PROJECT:

**Duke Power - Belews Creek** 

LOCATION: PROJECT NO .:

Belews Creek, NC 1264-02-576A J. Drummond

LOGGED BY: DATE DRILLED: BORING DEPTH (ft): 30.5

1/21/03

DRILLING CONTRACTOR:

DRILLING METHOD:

DRILL RIG:

S&ME, Inc. 31/4" H.S.A.

SHEET 1 OF 1

B-53

TOP OF CASING ELEVATION (ft): WATER LEVEL TOB (ft bgs):

WATER LEVEL 24 HRS (ft bTOC): 19.51

			Sample I	nformation			_			io o	<u> </u>
4	(feet)	Sample Number	Sample Interval (feet)	Blow Counts per 6 inches	Recovery (inches)	Rock RQD (%)	Symbol	Description & Remarks	Well Construction Details	Well Construction Graphic	Elevation (feet)
10 20 25		SS-2	10.5-12.0 15.0-15.5 20.0-20.5	5-7-13 50/4 50/3	6 6			Tan, orange brown, mottled gray fine sandy SILT, moist to dry.  Tan, light orange, white fine sandy SILT w/layering present, dry-moist.  Tan, light orange fine to coarse silty SAND, saturated.	Protective Casing Dia: 4.0 in. Type: Stick-Up Interval: 1.63 ft.  Riser Casing Dia: 2.0 in. Type: SCH 40 PVC Interval: 0.0 - 15.0 ft.  Grout Type: Portland Cement Interval: 0.0 - 10.0 ft.  Seal Type: Bentonite Chips Interval: 10.0 - 13.0 ft.  Filterpack Type: Filter Sand #2 Interval: 13.0 - 30.5 ft.  Screen Dia: 2.0 in. Type: SCH 40 PVC Interval: 15.0 - 30.0 ft.		

NOTES

SS = Split Spoon Sample = Shelby Tube Sample

= Bulk Sample

= Core Run

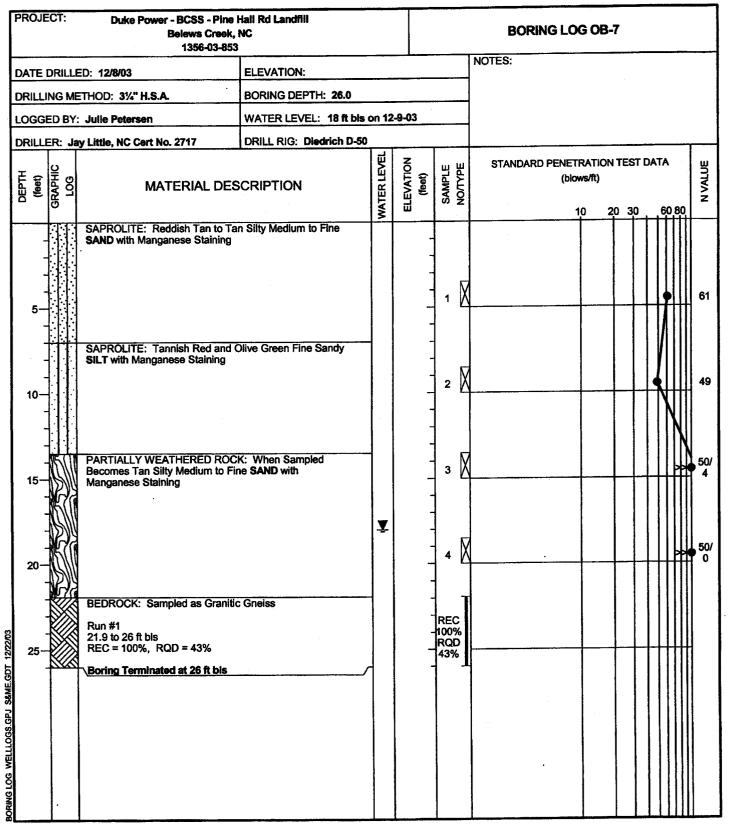
RS = Rock Sample
REC = Rock Core Recovery
RQD = Rock Quality Designation

1. 

▼ = Water Level At Termination of Boring

2. T = Water Level After 24 Hours





- 1. BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.
- 2. PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.



# **COMPLETION REPORT OF WELL No. OB-7**

PROJECT: Duke Power - BCSS - Pine Hall Rd Landfill

PROJECT NO: 1356-03-853

PROJECT LOCATION: Belews Creek, NC

WATER LEVEL: 18 ft bis on 12-9-03

LATITUDE:

DRILLING CONTRACTOR: **S&ME, INC.** 

DRILLING METHOD: 31/4" H.S.A.

DATE DRILLED: 12/8/03

LONGITUDE:

TOP OF CASING ELEVATION:

DATUM:

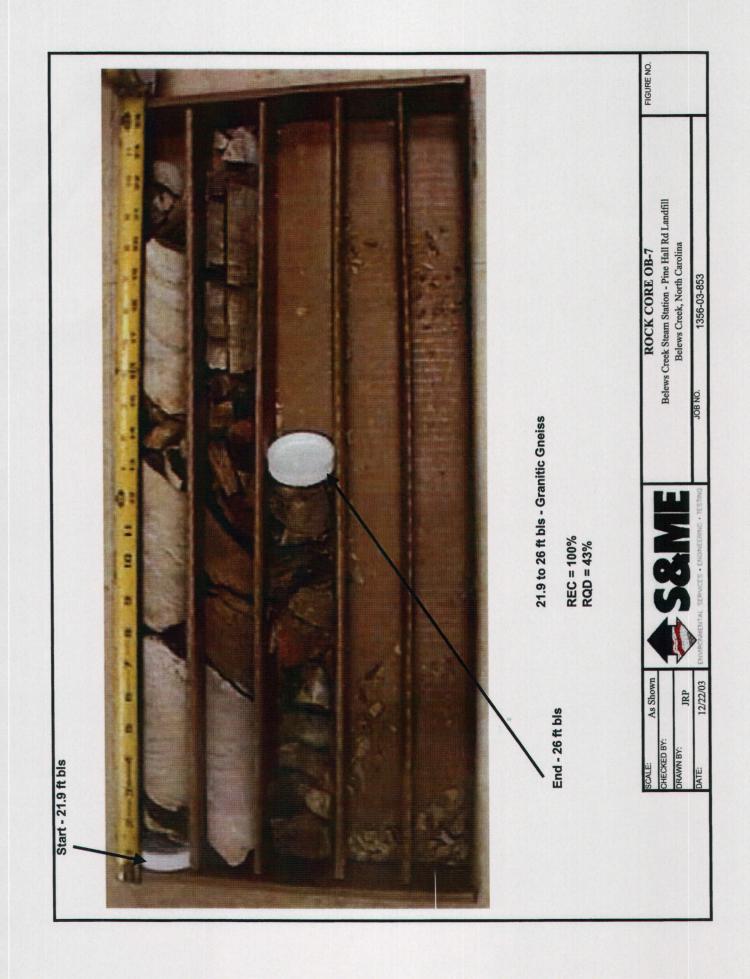
LOGGED BY: Julie Petersen

STRATA			i			7	
DESCRIPTION	SYMBOL	DEPTH (ft.)	WELL DETAILS	DEPTH (ft.)	LEGEND	ELEVATION (ft.)	WELL CONSTRUCTION DETAILS
SAPROLITE: Reddish Tan to Tan Silty Medium to Fine SAND with		0		0.00	GS		PROTECTIVE CASING Diameter: 4-inch Type: Lockable Steel Stickup Interval:
Manganese Staining  SAPROLITE:		- 5					RISER CASING Diameter: 2-inch Type: Sch. 40 PVC Interval: 23 to 13 ft bis
Tannish Red and Olive Green Fine Sandy <b>SILT</b> with Manganese Staining		- 10 -		9.00	CG BS		GROUT Type: Neat Cement Interval: 0 to 9 ft bis
PARTIALLY WEATHERED ROCK: When Sampled Becomes Tan Silty Medium to Fine		- 15					Type: Bentonite Interval: 9 to 11 ft bis  FILTERPACK
SAND with Manganese Staining		-20					Type: #1 Filter Sand Interval: 11 to 26 ft bis  SCREEN
BEDROCK: Sampled as Granitic Gneiss Run #1 21.9 to 26 ft bis REC = 100%, RQD =		25		23.00			Diameter: 2-inch Type: 0.010 Slot Sch. 40 PVC Interval: 13 to 23 ft bis
43% Boring Terminated at 26 ft bis							LEGEND  FILTER PACK  TOC TOP OF CASING  GS GROUND SURFACE
Boring Terminated at 26 ft bis							BENTONITE  BS BENTONITE SEAL  CEMENT GROUT  FP FILTER PACK TSC TOP OF SCREEN BSC BOTTOM OF SCREEN TD TOTAL DEPTH CG CEMENT GROUT



9751 Southern Pine Blvd. Charlotte, NC 28273 COMPLETION REPORT OF WELL No. OB-7

Sheet 1 of 1



FAX NO. 3362888980 P. 02 PROJECT: Duke Power **BORING LOG OB-8 Bolews Crook, North Carolina** 1584-04-864 NOTES: **ELEVATION:** DATE DRILLED: 3/10/04 DRILLING METHOD: 3 1/4" HSA/HQ BORING DEPTH: 21.5 WATER LEVEL: LOGGFØ BY: L. Birtler DRILL RIG: Mobile B-57 DRILLER: L. Morrison MATER LEVEL STANDARD PENETRATION TEST DATA ELEVATION SAMPLE NOTYPE (feel-MSL) GRAPHIC (blows/ft) ((<del>96</del>)) S MATERIAL DESCRIPTION 60 80 Fill: Brown Tan Fino Sandy SILT with Weathered Rock Fragments and Debris 12 1 Residuum: Tan Brown Fine Slightly Sandy SILT with slight Mn Oxidation Staining (Moist 9', Saturated 11') Ŋ. X 42 2 10 White Gray Silty Fine to Course SAND with 1/4" to 3/4" Quartz Fragments 23 3 15 Partially Weathered Rock: sampled as Gray Brown Micaccous Fine to Coarse Sandy SILT with Relict Structure and 1/2" diameter Rock Fragments; Auger 50/ 20 Refusal at 21.5'

### NOTES:

BORING LOG 1640-04-354 DUNE POWERE GP. BALLE GDT SATION

- 1. THIS LOG IS ONLY A PORTION OF A REPORT FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- 2. BORING, SAMPLING AND PENETRATION TEST DATA IN CENERAL ACCORDANCE WITH ASTM D-1585.
- 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.





## COMPLETION REPORT OF WELL NO. OB-8

PROJECT:	Duke Power	WATER LEVEL TOB (FT.):	20
PROJECT NO:	1040-04-864	WATER LEVEL 24 HRS (FT.):	7
PROJECT LOCATION:	Belews Creek, NC	TOP OF CASING ELEVATION (	FT.):
DRILLING CONTRACTOR		BORING DEPTH (FT.):	21.5
DRILLING METHOD:	3 1/4" HSA/HO	LOGGED BY:	L. Butler
DATE DRILLED:	3/10/2004	·	

STRATA			j				Z O			
DESCRIPTION	SYMBOL	DEPTH (feet)	WELL DETAILS	БЕРТН (feet)	LEGEND	SPT (N-value)	ELEVATION (feet)	FID (ppm)	OIId (mdd)	WELL CONSTRUCTION DETAILS
Ground Surface Brown Tan with Weathered Rock Fragments and Debris	<b>***</b>	0.0		0.1	CG				-	PROTECTIVE CASING Diameter: Type: Interval:
Pragments and Debris		-		3.2	BS					OUTER CASING Diameter: Type: Length:
Residuum: Tan Brown Fine Slightly Sandy SILT with slight Mn Oxidation Staining (Moist 9', Saturated 11')		5.0		4.3 5.3	BS TSC	7				RISER CASING Diameter: 2" Type: PVC Interval: +2.5-5.3
Saturated 11)		-								GROUT Type: Neat Cement Grout Interval: 0-3.2 SEAL
White Gray Silty Fine to Coarse SAND with 1/4" to 3/4" Quartz Fragments		10.0				25			-	Type: Bentonite Interval: 3.2-4.3  FILTERPACK Type: #1 Sand
								-		Interval: 4.3-21.5  SCREEN Diameter: 2"
		15.0	****	14.7 15.2	BSC TD	13				Type: 0.020 Interval: 5.3-14.7
Partially Weathered Rock: sampled as Gruy Brown Micaceous Fine to Coarse Sandy SILT with Relict Structure and 1/2" diameter Rock Fragments; Auger Refusal at 21.5'		-: -								LEGEND
nugei neiusai ai 21.3		- 20.0		20.5	FP					FP = Filter Pack CG = Cement Grout BSC = Bottom of Screen REC = Core Recovery

NOTES:



3109 Spring Forest Road Raleigh, NC 27616 COMPLETION REPORT OF WELL NO. OB-8

FAX NO. 3362888980

PROJECT; Duko Power **BORING LOG OB-9** Belows Creek, North Carolina 1584-04-864 NOTES: DATE DRILLED: 3/11/04 **ELEVATION:** DRILLING METHOD: 3 1/4" HSA/HQ BORING DEPTH: 46.4 LOGGED BY: L. Butler WATER LEVEL: DRILLER: L. Morrison DRILL RIG: Mobile B-57 WATER LEVEL SAMPLE STANDARD PENETRATION TEST DATA GRAPHIC (Seet-MSL) CEPTH (Feet) 901 (blows/ft) MATERIAL DESCRIPTION 20 30 60 80 Residuum: Brown Tan Fine Stightly Sandy SILT 18 1 5 Tan Brown Micaceous Fine to Medium Sandy SILT: Mn Oxidation, 45 degree reliot structure, weathered rock fragments 2 X 63 10 3 67 15 Gray White Fine Very Sandy SILT ;feldspathic Black Gray and Orange Brown Slightly Micacocus Fine to Modium Sandy SILT with Partially Weathered Rock 50/ 3 4 20 Fragments: damp ..... Partially Weathered Rock: sampled as White Gray Very 50/ 5 X Silty Fine SAND ;slight fissile texture, damp 25 6 9 SORING LOG (GUS-24-1864 DUKE POSTERZ GPJ SRIME GOT 347) Partially Weathered Rock: sampled as Tan and Orange Brown Very Micoceous Fine to Medium Sandy SILT; Mn Oxidation Stains fissile texture, 45 degree relict structure; gneissic rock seams 31 feet to 35 feet; Auger Refusal at 35.5 feet 30 Ţ 7 35 AR 1et Run: Biotife Griess intorlayered with quartz-feldspathic gnelss; high weathered from 35.5 to 35' and 36' to 35'; highly fractured parallel to foliation (45 degrees), REC=92%, RQD=26% 40 2nd Run; Biotite Gneiss; moderately weathered, REC=40%, RQD≣0%\_ 3rd Run: Possible Partially Weathered Rock; No recovery; Termination at 47.5 feet

### NOTES:

- 1. THIS LOG IS ONLY A PORTION OF A REPORT FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
- 2. RORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1688.
- 3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT
- 4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY,





# COMPLETION REPORT OF WELL NO. OB-9

PROJECT:	Duke Power	WATER LEVEL TOB (FT.):	
PROJECT NO:	1040-04-864	WATER LEVEL 24 HRS (FT.):	33.25
PROJECT LOCATION:	Belews Creek, NC	TOP OF CASING ELEVATION (I	FT.):
DRILLING CONTRACTOR		BORING DEPTH (FT.):	50
DRILLING METHOD:	3 1/4" HSA/HO	LOGGED BY:	L. Butler
DATE DRILLED:	3/11/2004		

			1	<del></del>	·	<del></del>		т		
STRATA						_	2			
DESCRIPTION	SYMBOL	DEPTH (feet)	WELL DETAILS	DEPTH (feet)	LEGEND	SPT (N-value)	ELEVATION (feet)	FID (ppm)	OIA (mdd)	WELL CONSTRUCTION DETAILS
Ground Surface  ,Residuum: Brown Tan Fine Slightly Sandy SILT  ,Tan Brown Micaceous Fine to Medium Sandy SILT; Mn Oxidation, 45 degree relict structure, weathered rock fragments  ,Gray White Fine Very Sandy SILT; feldspathic  .Black Gray and Orange Brown Slightly Micaceous Fine to Medium Sandy SILT with Partially Weathered Rock Fragments; damp ,Partially Weathered Rock: sampled as White Gray Very Silty Fine SAND; slight fissile		10.0		0.1	CG	10 33 35				PROTECTIVE CASING Diameter: Type: Interval: OUTER CASING Diameter: Type: Length: RISER CASING Diameter: 2" Type: PVC Interval: +2.5-36.5 GROUT Type: Neat Cement Grout Interval: 0-31.5 SEAL Type: Bentonite Interval: 31.5-33.5 FILTERPACK Type: #1 Sand Interval: 33.5-46.4
Partially Weathered Rock: sampled as Tan and Orange Brown Very Micaceous Fine to Medium Sandy SILT; Mn Oxidation Stains fissile texture, 45 degree relict structure; gneissic rock seams 31 feet to 35 feet; Auger Refusal at 35.5 feet Ist Run: Biotite Gneiss interlayered with quartz-feldspathic gneiss; high weathered from 35.5 to 36' and 38' to 39'; highly fractured parallel to foliation (45 degrees), REC=92%, RQD=26% Znd Run: Biotite Gneiss; moderately weathered, REC=40%, RQD=0% 3rd Run: Possible Partially Weathered Rock; No recovery; I crmination at 47.5 feet		35.0	¥	31.5 33.5 36.5 45.9 46.4	BS FP TSC BSC TD					SCREEN Diameter: 2" Type: 0.020 Interval: 36.5-45.9  LEGEND  We water Level At Termination of Boring (TOB)  We water Level After 24 Hours  BS = Bentonite Scal  FP = Filter Pack  CG = Coment Grout  BSC = Bottom of Screen  REC = Core Recovery  RQD = Rock Quality Designation

NOTES:



3109 Spring Forest Road Raleigh, NC 27616 COMPLETION REPORT OF WELL NO. OB-9



# Run 1 (35.5 - 40.5")

Recovery: 92%

RQD: 26% Rock Type: <u>Biotite Gneiss</u>

# Run 2 (40.5 - 42.5') Recovery: 40%

RQD: 0% Rock Type: Biotite Gneiss

# Run 3 (42.5 - 47.5')

Recovery: 0%
RQD: 0%
Rock Type: Biotite Gneiss

SRME

Belews Creek, Stokes County, North Carolina Duke Power - Belews Creek Steam Station S&ME Project No. 1040-04-864 Pine Hall Road Fly Ash Landfill

35.5 - 45.5' 0B-9 Sample Depth: Boring:

L. Butler 1 of 1 Logged By: Box:

# BELEWS CREEK PINEHALL ASH LANDFILL GEOTECHNCIAL BORING – LOGS PZ- SERIES

Depth (ff)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		3001	6263	Elev. (ft)
0_						Boring drilled to 52.0' with Casing Advancer.				
						Doring diffied to 52.0 with Casing Advancer.				
						2 - 1" Piezometers installed in this boring. S-1 screened from 41.0' to 44.0'.				
		:				S-2 screened from 49.0' to 52.0'				
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10_						Lost water at 10.0'.				875.7
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		<u> </u>	Samp	le Type	s S:sc	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit M:Moisture Conte	ent		
	w			eading		Project Information		•	lamn	ner/Drop
			T	Depth			Casing / Augers:	NW	Aut	omatic
	Date	Time	Cas-	Hole			Split spoon 1:			
	2/04 - S1		n/a	69.3	1	Project No.: 024.0069.0000	Split spoon 2:			
	2/04 - S2		n/a	69.3			Core Barrel ID:			
	5/04 - S1		n/a	69.3			Core Barrel Type:		-	
	5/04 - S2		n/a		42.75		Boring Logged By: C	Arthur	Medi	in
11/0	Date Bor				11/01/04				-	
	Date DO		USAL @		. 170 1704	$\Box$ $\mathcal{V}_{T_{\pmb{\lambda}}}$	BORING	PZ-	019	3
-						Devine Turbell & Associates, Inc.	Page 1 of			
:	Tota	Depth	of Hole	: 69.3		The state of Equipment of State of Stat	raye 101	<u> </u>		

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	Elev. (#)
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40			Ì		1				845.7
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		-			1.				
					1				
						S-1 screened from 41.0' to 44.0'.			
	-	+			1			旧	
	_				-				040-
4	<u> </u>	J	Samo	le Tyre	e Sien	t spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Co	ntent		840.7
	Ground	Surface	Elev. (ft)		85.70	Lab Tests G.gram des A.Autoroof g.min. m. Moisture Go			
			mpleted:		)/29/200	T <sub>A</sub> BORIN	G PZ-01	IS	
	В	oring Lo	gged By	: c	AMediir	Devine, Tarbell & Associates, Inc. Page	2 of 3.		

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)		nscs	Piez. Data	( <b>4</b> ) 840.7
<u>△</u> 45	<u>0 m</u>	<i>i</i> ò	ÖΩ	<u> </u>	ř	SOIL DESCRIPTION		-	840.7
								П	
				-					
		-							.
50									835.7
						S-2 screened from 49.0' to 52.0'.			. ]
				<u> </u>					.
			<u> </u>			Boring Terminated @ 52.0'.		Ħ	
						Borning Terminated @ 52.0.		Ш	
								Ш	
								$\  \ $	
									.
55_	ļ								830.7
	1			ļ				Ш	
	<del></del>							Ш	·
		1							
							1 1		
		1			ľ				
								Ш	
60_	<u> </u>			<u> </u>	-			П	825.7
ļ									
		1			ł			Ш	
					1				
1					1			$\  \ $	
								$\  \ $	
	<u> </u>	-			1				
		1							920.7
65_	<del>                                     </del>	┧		-	1			П	820.7
				<b>—</b>	1				
		1	l		1				
1	<u>L</u>								
1		]		<u></u>			1.		
		-	,				}		
			-	-	-				
	-	-		-	1				1
70				-	1				815.7
''	<u> </u>		Samn	le Type	e Sien	it spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content		الساليا	
		· · · ·			85.70		-		
	Ground S				)/29/200		Z-01	S	
			gged By	+	AMedli		_ • •	_	

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)				nscs	Piez.	(t) Elev. (t)
٥	<u>0 m</u>	ΰŽ	ÖÖ	9 B	æ€.	SOIL DESCRIPTION				0.	888.5
						Boring Drilled with Casinig Advancer. No sampling required.		•			
						Approximately 2.0' of Soil Cap over the Ash.					
						install Temporary Well to measure static Water Level.  ASH.		-			
						non.					-
	٠		,							$\ \ $	
										$\  \ $	
_								ļ			
5								j			883.5
											-
					:					$\ \ $	
10	ŀ					SOIL from ~10.0' to 13.0'.					878.5
										$\ \ $	].
										$\  \ $	
					•					$\  \ $	
15_											873.5
					ļ						
				<u> </u>	-					$\ \cdot\ $	
				<del></del>	-					$\  \ $	•
					1					$\ \ $	
	-	1									
								·		$\  \ $	
20	<u> </u>	L	<u> </u>						L	Ш	868.5
						t spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterber			ſ	<u> </u>	. 1
<u> </u>	W	ater Le	F .	eadings		Project Information	Equipment	ID	Han	nme	r/Drop
-		1	Cas-	Depth o		Client: Duke Energy Corporation	Casing / Augers:	NW			<del></del>
	ate	Time	ing	Hole	Wat		Split spoon 1:		-		· · · <u> </u>
	22/04	12:20p		100.0		Project No.: 024.0069.0000	Split spoon 2:		<u> </u>		
	25/04	12:45p		100.0	1	Location: Belews Creek, NC	Core Barrel ID:				·
	01/04	12:15p	1	1	89.50	Drilling Contractor: S&ME	Core Barrel Type: Boring Logged By:	C Arthu	r Me	dlin	· 
	04/04	8:30a	n/a		89.50	Driller: Travis Costello Rig: D-50 Track	Donnig Logged by.				
<u> </u>	Date Bo			-	0/22/04	$-$ \ $\mathbf{D_{T}}$	BORING	D7	US.	T/	•
		REF	USAL @	n/a		$\dashv$ $\mathbf{A}$	BUKING	۲۷.	.03	1.	,
	Tota	l Depth	of Hole:	100.0		Devine Turbell & Associates, Irre. One day I regions Societies, in Figulate Spreader.	Page 1	of 5			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	Elev. (#)
								П	
					-				
			ļ						
25_									863.5
				-					
		· r	1						
		'							
20									858.5
30_									300.0
								$\ \ \ $	
			1						
				<del> </del>					
35_									853.5
-									
								Ш	
								$\  \ $	
				<del> </del>					.
			1					Ш	
			1						
40_	<u> </u>				1			惺	848.5
			1		•				
	<u> </u>		ŀ		•	Lost Water at 42.0'.			
					1				
				-	-				
45									843.5
			Samp	le Type	es <b>S</b> :sp	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content	-		
	Fround S	Surface	Elev. (ft		88.50	- \ \D			1
	Date Bo	ring Co	mpleted	: 10	/22/200	TA BORING PZ	-03	ГC	
	Boi	ring Log	ged By	: c	AMedlir	Desine Turbell & Associates, Inc. Page 2 of 5.			

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	"9 / swolg	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data 83.5 843.5					
45							++	843.5					
					1			838.5 828.5					
							1 1						
					-								
	<u> </u>												
			<b>.</b>	<u> </u>									
					1		1 1						
50					1	Set NW Casing to 50.0'.		838.5					
					]	Drilling with Roller Cone, Water return.							
							1 1						
		1			1								
					1								
	-	1			1								
55_					-			833.5					
			1		1.			<b>間</b>					
	-				1								
					-								
		1			1.								
		]			]								
,				ļ									
		4		-	-								
		ļ						828.5					
60_	+	1			1								
1		İ			1								
l													
1		1			_			誾					
				<u> </u>	-	Water loss at 62.5'.							
	ļ	- 1			-	Back to drilling with the Casing Advancer.							
		1		<u> </u>	-								
		1		<b> </b>	1			誾					
65								823.5					
i													
		4											
		ļ			4								
	-	-			+ .			<b> </b>					
					1								
		1			1			誾					
-	<u> </u>	1	-										
				_	4		.	823.6					
70		<u> </u>	1					目   818.5					
_			Samp	-1		olit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content							
			e Elev. (f		888.5		2 US.	TO					
	Date Bo	oring Completed: 10/22/2004 BORING PZ-03TC						ĪŪ					
	Вс	oring Lo	ogged By	y: (	CAMedi	Device Turbell & Associates, Inc. Page 3 of 5.							

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)		SOIL DESCRIPTION	USCS Piez. Data	Elev. (#)
70_		-							818.5
									1
75_									813.5
/ 3_									
80									808.5
-									
		1	<b>i</b> .						
						ļ			
	<u> </u>								
85									803.5
-									
	-	-		<del> </del>					
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				-					
		1			]				
		-		-	1				
90					1				798.5
				_					
		1							
	-	-		-	-				
			-		-				
		1	1						
95	1					<u> </u>			793.5
-		·					on UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content		
			Elev. (ft ompleted		388.50 0/22/200		D <sub>TA</sub> BORING PZ	-03T0	<b>O</b> .
	7		aged By	+	AMedli		Pegge 4 of 5.		

6 Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		:			nscs	Piez. Data	794.5
). <del>-</del>													
				-									
100												Щ	789.5
						Boring Terminated @ 100.0'. Set 1" PVC pipe, bottom 60' slotted.						١	
						Set 1 PVC pipe, buttom do Sibilled.						1	
						·							
105													784.5
												İ	
			i										.
													1
110											ŀ		779.5
	1										1		
											ł		
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1										-			
	<u> </u>			<u> </u>						1		İ	
115			1								l		774.5
			1								•		
	<b></b>		'	<u> </u>									
	ļ	1											
				ļ									
	-	1											
	ļ				-								
120					1								769.5
			Samp	е Туре	es S:sp	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit N	I:Moistu	re Conten	t			
	Fround S	-,		1	88.50				INC F	17 <i>(</i>	127	·~	
-	Date Bo			1	/22/200			BUK	ING F		J	U	
L	Bot	ing Lo	ged By	C	CAMedin Drame Tarbell & Associates, fig. Page 5 of 5.								

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	uscs	Piez.	(t) 888.5
0_	0 =	62	60 E	шю	E E			W 10	888.5
-						Boring drilled to 64.3' with Casing Advancer. Start Sampling.			
						ASH.			
		l							
		Ì							
5_									883.5
							1		
			!						
-	<u> </u>								
					İ				
10									878.5
_						Soil seam from 10.0' to 12.0'.			
					ł				
				<u> </u>	1				
					1				
					4				
					┨				
15					1				873.5
-					]				
1	<u> </u>				4		1.		
ŀ					-				
					1				
					]				
	'				4				
		-		ļ	-				
20					1				868.5
	<u> </u>		Samp	le Type	es S:sp	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			
	V	/ater Lo				Project Information Equipment ID	Ha	mme	er/Drop
		-		Depth				Autor	matic
	Date	Time	Cas- ing	Hole			$\perp$		
	/05/04	10:00a		95.0					
			n/a			Location: Belews Creek, NC Core Barrel ID:			
		1	n/a			Drilling Contractor: S&ME Core Barrel Type:			
		1	n/a			Driller: Travis Costello Rig: D-50 Track Boring Logged By: C Art	nur N	ledlir	1
	Date Bo	ring Cor		:	11/05/04				
			USAL @			TA BORING P	<b>Z-</b> 0	3D	1
1		al Depth				Devine Turbell & Associates, Inc. Page 1 of 4			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)											nscs	Piez. Data	Elev. (ft)
Dep	Cas	San	Sar	Bio	Rec					SOIL DE	SCRIPTION	ł				S	<u>8</u>	<u>u</u>
20_													<del></del>			1		868.5
			1 }															
				•														
			1													1		1
ļ			1		-													
																		1.
	-		1													ļ		
25																1		863.5
-																		
İ																1		
		]				ļ										1		
1		1																
						1												
	<u> </u>	1																
1																		858.5
30_	<del> </del>	1														ļ		838.3
ŀ																		
		1																
		1																
	1				1													
		1			1													
	Ì				1	1												
		1			1											1		
35																1		853.5
-		]			]													1
		_														1		
		1			1	İ												
		]			1													
					4											İ		
		4		L														
	1	İ			-													
	<u> </u>	4		<u> </u>	-													
		1		<b> </b>	1	ļ												848.5
40_	<del> </del>	-		<u> </u>	-	} .										1		040.5
				-	-													
	-	1			1													
					1													
		-			1													
					1													
		7			1													
		1			7													
		7			1													843.5
45						<u> </u>										$oldsymbol{\perp}$		843.5
			Sampl	le Type	es S:sr	olit spoor	1 <b>UD</b> :2" d	dia. thin wa	II tube	Lab Tests G:	grain size A	:Atterberg	Limit M:	Moisture	Content			
	Grane	Suefee -	Elev. (ft)		388.50				1 =		-							
-			ompleted:		1/5/200				W	TA				BORI	NG P	<b>Z-</b> 0:	3 <b>D</b>	
			aged By	<del>`</del>	AMedli				Devine Tarbe	H & Associates, Inc.					age 2 of 4.			

(#) upded (#) 45	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (fi	SOIL DESCRIPTION	USCS Piez. Data	( <b>(((((((((((((</b>
40								
								838 5
50								838.5
			ļ	* .				
		1						
55_								833.5
		]						833.5
	ļ				i			
60								828.5
		1		ļ				
		1						
	· .	1		-	Ì			
		]	ļ		<u> </u>			
		<u> </u>						
65			64.3					823.5
03_		S1		8	1.4	S1, N=17; Gray, fine ASH (wet). M=21.8%		020.0
			65.8	9				
					]			
			66.8					
		<b>S2</b>		1	1.5	S2, N=3/18"; Gray, fine <b>ASH</b> (very wet). <b>M=22.8%</b>		818.5
				2	]			
			68.8	•				
			69.3					
70	<u> </u>		da	<u>  2</u>  -			1	818.5
						it spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content	*	
	Ground S				88.50 1/5/2004		7_N3ID	
·	Date Bo			<del> </del>			000	
	Bo	rina I o	nad Rv	ı c	<b>A Modli</b> r	Design Tarbell & Associates, Inc. Page 3 of 4.		

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	818.5
, o		<b>S</b> 3		2	2.1	S3, N=2/18"; Gray, fine ASH (very wet). M=24.4%			
			71.6 71.8						
				5					
		84		10	1.5	S4, N= 29; Top 0.3' is Gray, fine <b>ASH</b> (wet). <b>M=23.6%</b> Bottom 1.2' is Yellowish red, slightly micaeous, slightly clayey, <b>Very Silty Fine SAND</b> .			
			73.3	19		M=23.5%			
		,,,,,,,,,,	74.3			Contact @ 72.1'.			
<b>75</b> _		41154				UD1, Pushed 2.0', REC=1.2', G, A (PI=1), Porosity=0.460, M=26.4%	ML		813.5
						obj, rushou 2.0, rugo-1.2. G, A (ri-ry, rotoday strong in 2017)			
			255						
				9		S5, N=39; Yellowish pale red, slightly micaeous, Very Silty Fine SAND (dry). M=17.3%			
		S5	77.8	15 24	1.0	Drove casing to 75.8'. Drill with Roller Cone Bit to 83.3'.			
			, , , , , , , , , , , , , , , , , , ,						
	-								
80	İ	ļ		-					808.5
		1.							
	-	-							
		1			1	Run Falling Head Permeability Test - Open Hole from 75.8' to 83.3'.			
	-	-			-	k=1.24E-04 cm/sec.			
			83.3	10			1		
		<b>S6</b>		13	1.3	S6, N=33; Light yellowish brown, slightly micaeous, Very Silty Fine SAND. M=26.2%			
85_			84.8	20	1				803.5
	'			-	1				
		1							
		-			-				
				-	-		1		
			88.3		1				
				5		W 01 7 0 0 0 0 0			
90		S7	89.8	12	1.3	S7, N=19; Top 0.8' is Light yellowish brown, slightly micaeous, <b>Very Silty Fine SAND</b> .  Bottom 0.5' is Reddish brown, slightly micaeouls, <b>Very Fine Sandy SiLT</b> . <b>M=31.8%</b>			798.5
30	+	100,000	65.0			Bottom 6.6 15 Troducti Brotti, diigitay Micaessan, very tante early			
	<u> </u>	4		<u> </u>				H	T.
					-				
	-	-		-	1				
					]				
			93.3	50 Mg/s					
		S8		10	1 ,	D screened from 92.0' to 95.0'.  S8, N=31; Light yellowish brown, slightly micaeous, Very Silty Very Fine SAND. M=36.2%			
95			94.6			Boring Terminated @ 95.0'.			793.5
			Samp	ole Typ	<b>es S</b> :s	plit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			· · ·
	Ground	Surface	Elev. (f		B88.5			25	
	Date Bo	oring Co	ompleted	d:	11/5/200	4 BORING	<b>'</b> Z-0	3D	
	В	oring Lo	ogged B	y: (	CAMedi	in Design Tarbell & Associates, fire Page 4 of 4			

ο Depth (π)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez.	<b>Elev. (£)</b> 884.9
0		0, 2	V, L				-		884.9
	İ			1		2.5' of Soil cap on top of the Ash.			
. }						Augered to 35.0'.	ł		
Ī									l
	-				1				ļ
5		·			1				879.9
Ī					].		İ		
				<u> </u>					
				ļ	1.				
				<b> </b>	1				
					1				
							1		
					1				2740
10_				-	-				874.9
				-	1				
					1				-
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					]				
					-				
		1		-	4				
15		ŀ		-	┪			i.	869.9
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				-	1				
	-	1			1				
	L		ł		]				
									864.9
20	<u> </u>			<u>.</u>		A A II have black the Company			1 004.5
						lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content  Project Information Equipment ID	<u></u>		r/Drop
	<u> </u>	Vater L				- I I I I I I I I I I I I I I I I I I I	$\neg$		
		Ţ	Cas	• 1	of (ft		+	Autor	iatic
	Date	Time			W	ter Project: Belews Creek Pine Hall Ash Landfill Split spoon 1:	+		·
10	/19/04	10:22	n/a	80.8	77.0	Project No.: 024.0069.0000 Split spoon 2:	4_		
<u></u>		1	n/a			Location: Belews Creek, NC Core Barrel ID:			
			n/a			Drilling Contractor: S&ME Core Barrel Type:			<u> </u>
			n/a			Driller: Travis Costello Rig: D-50 Track Boring Logged By: C Art	nur N	iedlin	·
	Date Bo	oring Co	mpleted	d:	10/20/0	\D		–	
		-	FUSAL		1.	TA BORING P	<b>Z-</b> 0	I4D	
			of Hol			Devine Parbell & Associates, Inc. Page 1 of 5			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)										SOIL	DESC	RIPT	TION									uscs	Piez. Data	864.9
					. "																								
25																													859.9
																											:		
30																													854.9
		·																											
35					1																								849.9
-					1	Tried	d Cor	ntinu	ous (	Samı	pling	Tube	inside	the a	ugers.	Stopp	ed us	sing sa	ampl	er and	auge	red to	43.0	٠.					
40																													844.9
					1																								
					-																								
		1			1																								
		h	43.5	14																									
45		<b>S</b> 1	45.0	21 32	1.5	S1,	N=53	3; Lig	ght g	gray, 1	fine /	ASH (	(dry).	M=17	.5%														839.9
			Samp		es S:sp		oon	UD	:2" c	dia. t	hin v	vall tu	ıbe	Lab	Tests	G:gra	in siz	e A:/	Atter	oerg i	imit I	#:Mc	oistur	e Co	nten	ıt			
	Ground S				8 <b>84.9</b> 0							\	D	T	Á							R	OF	NIS	G	P7	<u>-0</u> 2	ID.	
	Date Boring Completed  Boring Logged By											ņ	vine Tark	ell & Asso	ciates. Inc.						BORING PZ-04D Page 2 of 5.								

Depth (ft)	Casing Blows/ft	Sample No.	Sample O'Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	SOSA	Piez. Data	839.9
2		<b>S</b> 2	46.5	12 16 22	1.5	S2, N=38; Light gray, fine ASH (dry). M=13.5%			
		<b>S</b> 3	46.8 45.3	9	1.5	S3, N=17; Light gray, fine ASH (dry). M=16.9%	·		
50_		<b>S4</b>	49.3 50.8	23 18 46	1.5	S4, N=64; Light gray, fine ASH (dry). M=15.4%			834.9
		\$5	51.8 53.3	9	1.5	S5, N=14; Light gray, fine ASH (dry). M=19.5%			
55		\$6	54.3 55.8	3 13 20	1.0	S6, N=33; Light gray, fine ASH (dry). M=19.7%			829.9
		<b>S</b> 7	56.8 58.3	7 23 26	1.5	S7, N=49; Light gray, fine ASH (moist). <b>M=27.2%</b>			
60_		SS .	59.3 60.5	38 56/3	1.2	S8, N=88/9"; Light gray, fine ASH (moist). M=28.2'			824.9
		<b>S9</b>	61.8 63.3	9 9 12	1.5	S9, N=20; Light gray, fine ASH (moist). M=26.7%			
65_		<b>810</b>	64.3 65.8	9 12	1.5	S10, N=20, Light gray, fine ASH (wet). M=26.7%			819.9
		SII	66.8	21 31	1.5	S11, N=77; Light gray, fine ASH (wet). M=20.3%			
70		S12	69.3	3		S12, N=16; Top 0.7' - Light gray, fine ASH (wet). M=23.3% Contact @ 70.0'.  Bottom 0.8' - Yellowish brown, slightly micaeous, Silty Fine SAND. M=19.6%			814.9
	Ground S  Date Bo		Elev. (f	t) { j: 1	es S:sp 884.90 0/20/200 1/3/1900	BORING PZ	Z-04	4D	

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (ft)	COUL DESCRIPTION		SOSA	Piez. Data	Elev. (ft)
70_	OB	<u> </u>	000000000000000000000000000000000000000	<u> </u>	α€	SOIL DESCRIPTION		_	_	814.9
			70.8	13						
			71.8						.	
				9						
		<b>S13</b>		18 26	1.2	S13, N=44; Yellowish brown, slightly micaeous, Silty Fine SAND. M=13.9%			Ì	
			73.3	49						
		esegginiva	74.3							
75		S14	75.1	30 50/4	1.1	S14, N=50/4"; Yellowish brown, slightly micaeous, Silty Fine SAND M=10.79	6			809.9
				MMIS	] '''	erry ( coor) ( coordinate brown, congress, consequence of conseque				
				-						
			76.8	5		Water Table @ 77.0' on 10/19/04				
		S15		5	1.2	S15, N=15; Yellowish brown, slightly micaeous, Silty Fine SAND. M=28.8%.				
			78.3	10						
			79.3	<u> </u>						
				9						
80_	<u> </u>	516		10	1.2	S16, N=23: Yellowish brown, slightly micaeous, Silty Fine SAND . M=25.1%				804.9
			8.08	13	1	Stop augering at 79.3' and set NW casing inside augers down to 81.3'.				
			81.3		]				l	
		<b>S17</b>		13 17	0.8	S17, N=38; Yellowish brown, slightly micaeous, Slity Very Fine SAND M=30	7%			
		• • •	82.8	21	0.0	ST7, N=30, Tellowish blown, Slightly filled buts, Slicy Very Fille SAND. In=30	.,, 70			
					]					
	<u> </u>		83.8		1					
85_		1907			1	UD1, Pushed 1.5'. Lost UD in hole. Not able to retrieve UD. Ran casing advance	cer down to 99.0'			799.9
					4	and started buliding nested wells. Pulled all casing. Bentonite pellets hung up i	•			
					1	pulled the PVC pipes out of the ground. Hole abandoned and grouted. Moved : PZ-04DA.	o.5 away and drilled			
					1					
			·		-					
		1			1					
		]								
90				<u> </u>	-					794.9
30_	1	1								704.0
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95		<u>L</u>				<u> </u>				789.9
$\vdash$				1		lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit M:Moisture Content			
	Ground S			1	8 <b>84.90</b> 0/20/200		BORING PZ	'_ <b>∩</b> 4	D	
-	Date Bo		-	+					_	
	50	ring Lo	igea by	<u> </u>	AMedli	Excellent to be on the month to provide a devi-	Page 4 of 5.			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		nscs	Plez. Data	( <b>t</b> )
95_									П	789.9
									Ш	
									Ш	
									Ш	
					<u> </u>	Boring Terminated @ 99.0'.	. *			
100									Ш	784.9
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10 <u>5</u>					ĺ					779.9
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110					-				$\{ \  \}$	774.9
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115	<u> </u>				1				$\  \ $	769.9
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120	1			$\vdash$	-					764.9
120	<u> </u>	<u> </u>	Same!	i la Tres	- C	If open HD2" die this well tube. Leb Teste Cornin eine ArAtterberg Limit Mildeleture	Content	<u> </u>		1 104.8
$\vdash$				1		lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture	COREIR			
			Elev. (ft		3 <mark>84.90</mark>	D <sub>TA</sub>	ING PZ	7 <b>.</b> 041	ח	
-			mpleted					_	_	
	Bo	ing Lo	gged By	:  C	AMedili	Devine Turbell & Associates, Inc.	Page 5 of 5.			

	Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRI	PTION			uscs	Piez.	884.9
	°-						Move 5.5' at N52E from PZ-04D and drill down to 76.2' with the	ne Casing Advanc	er.				884.9
							2.5' of Soil cap on top of the Ash.				-		
							ASH to ~70.0'.						
							2 - 1" Piezometers installed in this boring. D-1 screened from	81.0' to 84.0'.					
			-				D-2 screened from						
٠.													
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.	5												879.9
١													
	10_			*.									874.9
											l		
	15_										-		869.9
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	20					1							864.9
		1		Sampl	e Type	s S:sp	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain s	ize A:Atterberg	Limit M:Moisture Con	tent		<u> </u>	-
		W			ading		Project Information	Ĭ	Equipment	ID	Han	nme	r/Drop
				T	Depth o		Client: Duke Energy Corporation		Casing / Augers:	NW	А	uton	natic
		ate	Time	Cas- ing	Hole	Wa			Split spoon 1:				
	10/	21/04	7:46a	97.0	97.0	73.2'	Project No.: 024.0069.0000		Split spoon 2:				
	11/05	/04 - D1	7:31a	n/a	97.0	72.93	Location: Belews Creek, NC		Core Barrel ID:				
	11/05	5/04 -D2	7:31a	n/a	97.0	73.32	Drilling Contractor: S&ME		Core Barrel Type:				
						1	Driller: Travis Costello Rig: D	-50 Track	Boring Logged By: (	Arthu	ır Me	dlin	
		Date Bo	ring Cor	npleted:	1	0/21/04	\D					<b>.</b>	
			REF	USAL @	n/a		TA		BORING	PZ.	-04	ŊΑ	<b>k</b>
		Tota	l Depth	of Hole	97.0		Devine Farbell & Associates, Inc.		Page 1 o	of 5			

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (ft)														SOSO	Piez. Data	(t) 864.9
<u>20</u>	ឌីតី	Sa	Sa	ř	#€	<u> </u>		<u>.</u>			sc	OIL DESC	CRIPTIO	N	<u> </u>				<u>  5</u>	ā	864.9
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45	_i	<u> </u>	Samr	de Tvn	es S.c.	plit spr	on Hir	):2" dia 1	hin wal	l tube	Lah Te	sts G:gra	in size A	:Atterbe	era Lim	it M:Mo	isture (	Content		- 1/2	300.8
	Ground :	Surface			884.9		VE	414.	1761	\ 1	<u> </u>				اً ا					, ,	
	Date Bo				0/21/200					P	TA					BC	RIN	G P	Z-04	ID/	4
	Boring Logged By				CAMedi	in				Devine Turk	ell & Associate	s, Inc.			1		Pa	ge 2 of 5.			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		USCS Plez Data	Elev. (#)
50_				-					834.9
					:		ŀ		
	-								834.9
55_									829.9
							-		
60_									824.9
65_									819.9
									819.9
70						Into RESIDUAL SOIL at approximately 70.0'. (Determined by color of return water.)			814.9
						olit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture C	ontent		
1			Elev. (ft) npleted:		84.90 /21/2004		G PZ-0	)4D/	<b>A</b> ,
	Bor	ing Log	ged By:	l c	AMediin	n Desine Tarbell & Aspursaces, Jun. Pa	ge 3 of 5.		

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		nscs	Piez. Data	Elev. (#)
/ 0										014.0
					-					
										1
75					-					809.9
75_										000.0
			76.2		]					1
İ										
		***				UD1, Pushed 2.0', REC=1.5'. G, A (PI=Non-Plastic), Porosity=0.400, M=22.7'	<b>%</b>	ML		
1			78.2	-	1					
			11111111111			Set Casing down to 78.5' with hammer. Drilled with Roller cone down to 86.5' to	run a			
						permeability test.				
				<u> </u>	ļ					804.9
80_					i					804.9
	ļ ·				1	D-1 screened from 81.0' to 84.0'.			Ш	
								3	劃	
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									劃	i
		]				•			剈	
					4					
85_		1		<u> </u>	┨				Н	799.9
				<b></b>	1					
					1	Run Falling Head Permeability Test - Open Hole from 78.5' to 86.5'.				i
1.		-		<u> </u>	4	k=9.82E-05 cm/sec. Note that water dropped 73.95' during test to close to star	tic groundwater			
	Į	1		<u> </u>	1	level. Drilled with Casing Advancer down to 97.0'.				
		1		<u> </u>	1	Diffied with Casing Advances down to 97.0.				
	<u> </u>	1			]					
		1			-					
90_	+			-	-					794.9
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		:			]					l
	<u> </u>	1	-		4					ŀ
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1		1			1					
					1				Ц	
					4	D-2 screened from 94.0' to 97.0'.				
95			1		<u> </u>				且	789.9
				T		lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit M:Moisture Content	<del></del>		
	Ground :				8 <b>84.90</b> 0/21/200		BORING PZ	.በ⊿ፑ	١Δ	
-	Date Bo				01£11200			UTL	<i>,</i>	
	Во	ring Lo	gged By	: 0	AMedli	Designe Turbell & Associates, Dru.	Page 4 of 5.			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	789.9				
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						Boring Terminated @ 97.0'.		П					
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	789.9   789.9												
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120								Ш	764.9				
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						$\mathbf{p}_{TA}$ Boring Pz-	04[	ŊΑ					
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Depth (ft)		Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SON DESCRIPTION		nscs	Piez.	( <b>(((((((((((((</b>
1	士	ပဏ	ØΖ	ØΔ	<u>a</u> a	æ €	SOIL DESCRIPTION		3	-	887.6
							Boring drilled with Casing Advancer.				1 1
	Ŀ		Ì				1.0' Soil cap on top of the ASH.			Ш	
							Install Temporary Well to measure Static Water Level.				1
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	I				-		Lost all water at 6.5'.		ĺ		1 1
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. ] .	20					1					867.6
H		<u> </u>	<u> </u>	Camel	le Tyres	- C	it spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterber	a Limit M:Moisture Content			
-								Equipment ID	Har	nme	er/Drop
+		W	ater L	7	eading:		Project Information				
-	· · ·		T	Cas-	Depth (		Client: Duke Energy Corporation		+	wiol	matic
-		ate	Time	ing	Hole	1		Split spoon 1:	+		
$\vdash$		21/04	5:53p	n/a	90.0		Project No.: 024.0069.0000	Split spoon 2:	Ш		
-		25/04	12:30p	1	90.0*		Location: Belews Creek, NC	Core Barrel ID:	•		
$\vdash$		27/04	7:40a	n/a	90.0	1	Drilling Contractor: S&ME	Core Barrel Type: Boring Logged By: C Arth	ur M	dlin	
$\vdash$	11/	04/04	8:09a	n/a	90.0			Doing Logged by. C Aid			-
-	ţ	Date Bo		npleted		10/21/04	$-$ \D <sub>T</sub> .	POPING D7	. ne	T	,
_			REF	USAL @	n/a		I A	BORING PZ	UJ	1	'
L		Tota	l Depth	of Hole	: 90.0°	-	Desine Turbell & Associates, Inc.	Page 1 of 4			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	867.6
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45				<u> </u>	1				842.6
			Sampl	е Туре	s S:sp	spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			
G	round S	Surface	Elev. (ft)	T	87.60	\ D			
	Date Bor	ring Cor	npleted:	10	/21/200	TA BORING PZ-	05T	0	
1	Bor	ring Loc	ned By:	C.	<b>ΔM</b> edlin	Devine Turbell & Associates, Inc.			

Cepui (iii)	Casing Blows/fft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION			nscs	Plez.	<b>Elev. (#</b> )
0						Boring drilled to 75.1' with Casing Advancer.					887.6
						boiling diffied to 75.1 with Cashing Advances.					
						2 - !' Piezometers installed in this boring. D-1 screened from 74.8' to 77.8'.  D-2 screened from 96.5' to 99.5'.					
		. 1	ŀ		-						
-											
			4.1								
5	Ì	81		2	1.0	S1, N=4; Light gray, fine <b>ASH</b> (dry). <b>M=18.4%</b>					882.
•		91	5.6	2	1.0	OT, N=4, Light gray, wife Addit (ally). In-10-476					<del></del>
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Ì											
		.									
			9.1	9							
10_		<b>5</b> 2		10	0.8	S2, N=23; Light gray, fine <b>ASH</b> (wet). <b>M=27.7%</b>		1			877.
			10.6	13							
								.			
								1			
		Ì		<u>.</u>							
			14.1								
				13		CO Nigro, Links and Co. ACH (cost) Naga 70/					872.
15		<b>5</b> 3	15,6	15 18	1.0	S3, N=33; Light gray, fine ASH (wet). M=24.7%					072
				518	1						
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	<del> </del>		19.1	6							
20	ļ <u>.</u>	S4		10	0.9	S4, N=21; Light gray, fine ASH (damp). M=20.0%					867
	_		Sampl	е Туре	s S:sp	it spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit M:Moisture Con	tent			
	W	ater Le	vel Re	eading:	<u> </u>	Project Information	Equipment		Ham		
		1	Cas-	Depth o	of (ft)	Client: Duke Energy Corporation	Casing / Augers:	NW	Au	toma	atic
0	ate	Time	ing	Hole	Wat		Split spoon 1:				
11/01	/04 - D1	12:45p	n/a	99.5'	70.45	Project No.: 024.0069.0000	Split spoon 2:				
	/04 - D2		n/a	99.5	71.67	Location: Belews Creek, NC	Core Barrel ID:				
	/04 - D1		n/a	99.5'	70.32	Drilling Contractor: S&ME	Core Barrel Type: Boring Logged By:	C Arthu	r Med	llin	-
	/04 - D2		n/a		72.0'	Driller: Travis Costello Rig: D-50 Track					
!	Date Bo				10/28/04	$ \mathbf{D_{T_{A}}}$	BORING	. P7	-05	D	
	REFUSAL @ n/a						BORING PZ-05D Page 1 of 5				

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	817.6
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90_	-	<del> </del>	<u> </u>	<del> </del>		Boring Terminated @ 90.0'.	_	┧┞	797.6
					1	Set 1" PVC, bottom 60' slotted.			
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					-				
95					_			11.	792.6
-						lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Conter	ц		<del></del>
			Elev. (ft) mpleted:		87.60 0/21/200		Z-05	TO	)
$\vdash$			mpietea: gged By	+	AMedii				

Depth (ft Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION		USCS Plez. Data 867.6
Casing Blows/ft		20.6	10				867.6
							862.6
				٠			
		24.1			UD1, Pushed 0.5', REC=0.		
25	1	25.7			Set enging to 25 7 and Dun Falling Head Democratility Test. Flush Dattern		862.6
		25./	10		Set casing to 25.7' and Run Falling Head Permeability Test - Flush Bottom.  k=3.73E-04 cm/sec - Unsaturated.		
	85	27.2	12 14	1.2	S5, N=26; Light gray, fine ASH (damp). M=21.0%		
- 1	1						
		29.1	estele i ce				
30	S6		7	1	S6, N=23; Dark to light gray, fine ASH (damp). M=21.6%		857.6
		30.6	16				<u>857.6</u>
-							
	-						
		34.1					
			12				
35	S7	35.6	16 34	?	S7, N=50' Light gray, fine <b>ASH</b> (wet). <b>M=20.1%</b>		852.6
· -							
	1						
		39.1	13				
40	<b>.</b> 88		22	0.8	S8, N=48; Light gray, fine ASH (wet). M=21.3%		847.6
		40.6	26				847.6
		41.6					
	<b>5</b> 9		4 8	1.2	S9, N=20' Light gray, fine <b>ASH</b> (wet). <b>M=23.8%</b>		
		43,1	12			· [	
		44.1					
45	S10		5		S10, N=14; Light gray, fine <b>ASH</b> (wet). <b>M=32.5%</b>		842.6
	· Canadiana	Samp	е Туре	<b>s S</b> :sp	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Mo	oisture Content	
Ground			1	87.60 1/28/200		ORING PZ-	05D
	oring Cor		+	AMediir		Page 2 of 5.	<b></b>

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	842.6 842.6
45_			45.6	10					
		<b>S11</b>	46.6	6 9 13	1.3	S11, N=21; Light gray, fine <b>ASH</b> (wet). <b>M=29.1%</b>			
50_		S12	49.1 49.5	50/5	0.5	S12, N=50/5"; Light gray, fine <b>ASH</b> (dry). <b>M=23.3%</b>	4		837.6
		S13	51.6		0.9	S13, N=42; Top 0.5' is Yellowish brwon, slightly micaeous, Silty Fine/Medium SAND.			
			53,1 54.1	25		Bottom 0.4' is Light gray, fine ASH (wet). M=20.7%			
55_		\$14	54.9	50 50/4	1	S14, N=50/5"; Top 0.1' is Yellowish brown, slight micaeous, Silty Fine/Coarse SAND.  Bottom 0.9' is Light gray, fine ASH (dry). M=21.5%			832.6
		S15	56.6 58.1	33 30 34	1.2	S15, N=64; Gray, fine <b>ASH</b> (dry). <b>M=23.4%</b>			
60_		S16	59.1 60.6	1 3 2	0.7	S16, N=5; Light gray, fine <b>ASH</b> (wet). <b>M=29.7%</b>			827.6
		\$17	61.6	5 9	1.5	S17, N=20; Gray, fine <b>ASH</b> (wet). <b>M=23.7%</b> , with small inclusions of soil.			
65_		<b>S12</b>	64.1	9 17 50	1.5	S18, N=67; Gray, fine <b>ASH</b> (wet). <b>M=26.4</b> %			822.6
		\$19	66.6		1.5	S19, N=12; Dark gray, fine <b>ASH</b> (wet). <b>M=28.5%</b>			
70		S20	69.1	6		S20, N=15; Dark gray, fine <b>ASH</b> (wet). <b>M=30.0%</b> Dit spoon <b>UD</b> :2" dia. thin wall tube <b>Lab Tests G</b> :grain size <b>A</b> :Atterberg Limit <b>M</b> :Moisture Content			817.6
	Ground :		Elev. (ft	) (1 1: 1	B87.60 0/28/200	D <sub>TA</sub> BORING P	Z-0:	5D	

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	SOSO	Piez. Data	817.6
٠,٥_			70.6	9				П	01110
			71.6						
				4					
		621		6 3	1.5	S21, N=9; Top 1.0' is Gray, fine <b>ASH</b> (wet). <b>M=31.2%</b> Bottom 0.5' is Yellowish brown, slightly micaeous, <b>Fine Sandy Clayey SILT</b> (damp).			
			73.1			Combined Ash/Residual Sample, M=24.1%			
			74.1			Ash/Residual Contact @ 72.6'.			
75		522		4	1,5	S22, N=12; Reddish yellow, slight micaeous, Fine Sandy Silty CLAY (damp). G, A (PI=12),	CL	Ш	812.6
			75.6	8		M=20.5%			
			76.6			Drive casing from 74.1' to 76.0'. D-1 screened from 74.8' to 77.8'.			
		oba				UD2, Pushed 1.4', REC=1.4'. G, A (PI=9), Porosity=0.309, M=17.7%	CL	誾	
			298.992	6		Lab Permeability - k=1.00E-06 cm/sec.		П	
		S23		7	1.5	S23, N=18; Top 0.3' is Yellowish brown, Fine Sandy SILT.			
80			79.5	11		Bottom 1.2' is Light gray, slightly micaeous, Fine Sandy Silty CLAY. M=32.3% Roller Cone to 79.5'.	-		807.6
0V	1					Run Falling Head Permeability Test - Open hole from 76.0' to 79.5'.			
	ļ.					k=5.91E-06 cm/sec.	1		
		İ							
			83.1						
		S24		8	1.5	S24, N=20; Pale reddish yellow, slight micaeous, Fine Sandy SILT. M=33.4%			
			84.6	12					
85_	<del>                                     </del>			-	1				802.6
		]			1				
				-	}				
	-			-					
		S2200000171	88.1						
	1	S25		35 32	1.3	S25, N=82; Yellowish brown, slightly micaeous, Silty Fine SAND. M=20.5%			
			89.6	0.000	1.3	DEC, 11-02, TORONIST BROWN, Singillay Illiacassas, Only 1 110 C 1127 III 2010			
90_	-	-		<u> </u>	4		1		797.6
					-				
			93.1 93.2	50 4 (8°07) F T	l I	S. N=50/4", No December			
	ļ. 1	8	93.2	30/1	1	S, N=50/1"; No Recovery.	1.		
i		]			]				
		-		-					
95	<u> </u>				<u>L</u> _		1_		792.
			Samp	le Type	es S:sp	olit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			-
	Ground	Surface	Elev. (ft	-	887.60		, , 0,	: D	
	Date Bo	ring Co	mpleted	l: 1º	0/28/200	BORING PZ	U;	ענ	
<u> </u>	Вс	oring Lo	gged By	<u>/:</u>   0	AMedli	n Deuts Tarbell & Asportates, Inc. Page 4 of 5.			

Depth (ft)	Casing Blows/ft	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION	nscs	Piez. Data	( <b>t</b> ) 192.6
								Ш	
		ricesso	97.9			D2 screened from 96.5' to 99.5'.			
:)		\$26	98.8	41 50/5	0.8	S26, N=50/5"; Yellowish brown, slightly micaeous, Silty Fine/Coarse SAND. M=14.7%			
100						Boring Terminated @ 99.5'.		$\prod$	787.6
								$\  \ $	
									700.0
105									782.6
	-								
			-						
								$\left  \left  \right  \right $	
		-		<u> </u>			Ì		
110									777.6
				<u> </u>					
115	<u> </u>	1							772.6
	-								
					-				
		1			1				
	-	-		-	-				
120	1		<u> </u>		1				767.6
-	·				•	lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content		···	<u> </u>
	Ground S				387.60 0/28/200		Z-0:	5 <b>D</b>	
			gged By	+	AMedii				

Depth (ft)	Casing Riows/ff	DIOWS/II	Sample No.	Sample Depth (ft)	Blows / 6"	Recovery (ft)	SOIL DESCRIPTION			nscs	Piez.	Elev. (ft)
0_	+	+	-				Boring drilled with Casing Advancer.					887.6
			1				1.0' of Soil Cap on top of the Ash.					
							Install Temporary Well to measure Static Water Level.					
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		$\dashv$				1			1			
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10		_					Lost water at 10.0'.					877.6
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15	-	$\dashv$										872.6
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20		Į			<u> </u>	1						867.6
-	<u> </u>	1		Samri	e Type	e Sten	it spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterber	ra Limit M:Moisture Con	tent		-0 1/2	
-		141-			ading		Project Information	Equipment		Ham	mer	Drop
		445	ACT LE		Depth o			Casing / Augers:	NW		utoma	
	Dete		Tim-	Cas-	Hole	Wat	Client: Duke Energy Corporation	Split spoon 1:	1444			
-	Date	$\dashv$	Time	ing	1	1						
	0/29/04		1:12p	n/a	69.3'	59.6'	Project No.: 024.0069.0000	Split spoon 2:				
	1/01/04		12:41p	n/a	69.3	1	Location: Belews Creek, NC	Core Barrel ID:		•		
1_1	1/03/04	Ц	7:05a	n/a	69.3		Drilling Contractor: S&ME	Core Barrel Type:	- A-4-1	P.*		
	1/05/04	l .	7:58a	n/a	69.3	62.9'	Driller: Travis Costello Rig: D-50 Track	Boring Logged By: (	Arthu	r Me	alin	·
_	Date E	Bori	ng Con	pleted:	1	0/29/04	\ <b>D</b>					
			REF	JSAL @	n/a		$\Box$ $\mathbf{T}_{\mathbf{A}}$	BORING	PZ	-05	S	
	To	otal	Depth	of Hole:	69.3		Devine Turbell & Associates, Inc.	Page 1 d	of 3			

(f)	ığ ≸#	Sample No	i (ft)	.9/s	ery (fi																Data	€
Depth (ft)	Casing Blows/ft	Samp	Sample Depth (ft)	Blow	Recov						so	IL DESC	CRIPTI	ON						nsce	Piez.	(t) 867.6
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			Sampl	le Type	s S:sp	lit spo	on UE	):2" dia.	thin wa	ill tube	Lab Tes	ts G:gra	in size	A:Atter	rberg l	_imit N	l:Moist	ure Co	ontent			
	Ground S	Surface	Elev. (ft)	_	87.60					ID	) 	—	,									
	Date Bo	ring Co	mpleted:	. 10	/29/200	4				~	1A						BO	RIN	G P	Z-0	58	
1	Bo	rina l o	nned Rv	ء ا	∆Morilir	.				Devine Tarbi	ll & Associates,	Inc.						Pane	2 of 3			

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (f	SOIL DESCRIPTION	USCS	Flex. Data	
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65		1		<b> </b>	1			82	2.6
_		1			]				
	-		66.0		4				
					1	UD1, Pushed 0.8', REC=0.3'. <b>ASH</b> .			
					1	Drilled to 69.3' and Run Falling Head Permeability Test - Flush Bottom.			
		_				k=1.75E-04 cn/sec - Saturated.			
				-	-	S screened from 66.3' to 69.3'.			
	-	1		-	1	3 Screened Holli 00.3 to 08.3.			
70				<u> </u>		Boring Terminated @ 69.3'.		_	17.6
			Samp	le Туре	s S:sp	olit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			
_	Ground 8			7	87.60		٥٠٠		
<u> </u>	Date Bo	ring Co	mpleted	: 10	0/29/200	BORING PZ-	USS		
	Во	ring Lo	gged By	: c	AMedli	n Devine Tarbell & Associates, Inc. Page 3 of 3.	-		

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (fi		SOSA	Piez. Data	Elev. (#)
20	ပီစာ	<u> </u>	0 a	<u> </u>	8	SOIL DESCRIPTION	_ <del>5</del>   i	<u>Σ</u>   ε	<b>Ш</b> 867.6
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45					<u>                                     </u>				842.6
			Sampl	е Туре	s S:sp	t spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg Limit M:Moisture Content			
L	Ground S	Surface	Elev. (ft)	ε	87.60				
			mpleted:		0/29/2004	TA BORING PZ	<u>'-05</u> \$	3	
Boring Logged By				c	AMedlin	Page 2 of 3.			

Depth (ft)	Casing Blows/ft	Sample No	Sample Depth (ft)	Blows / 6"	Recovery (ft	SOIL DESCRIPTION		nscs	Piez. Data	( <b>t</b> ) 842.6
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65_					]					822.6
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			66.0	ļ. 	1					
1					-	UD1, Pushed 0.8', REC=0.3'. <b>ASH.</b>				
ĺ				1	1	Drilled to 69.3' and Run Falling Head Permeability Test - Flush Bottom.				
		1			1	k=1.75E-04 cn/sec - Saturated.				
		1			1					
		1			1	S screened from 66.3' to 69.3'.				
				<u> </u>	<u> </u>			-	眉	4
70	1	<u> </u>	<u> </u>	<u></u>	1	Boring Terminated @ 69.3'.			Ш	817.6
			Samp	T		lit spoon UD:2" dia. thin wall tube Lab Tests G:grain size A:Atterberg	Limit M:Moisture Content			
			Elev. (ft) mpleted:		3 <b>87.60</b> 0/29/200		BORING PZ	<b>Z-05</b>	S	
	Boring Logged By:				CAMedlin Design Tarbell & Asperlates, Inc. Page 3 of 3.					